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Best's
Methodology and Criteria

Understanding BCAR for US Property/Casualty Insurers

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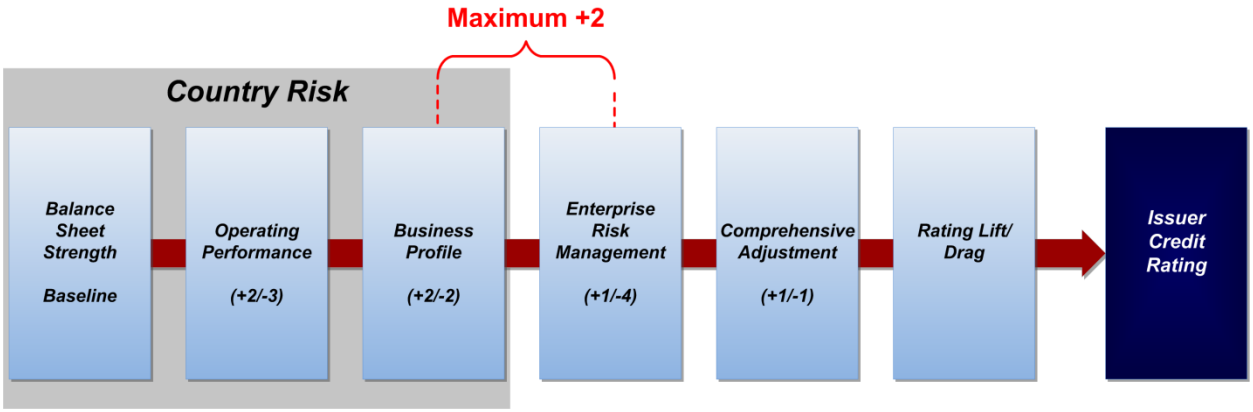
Outline

The following criteria procedure should be read in conjunction with *Best's Credit Rating Methodology (BCRM)* and all other related BCRM-associated criteria procedures. The BCRM provides a comprehensive explanation of Best's Credit Rating Process.

A. BCAR and Best's Credit Rating Process

Best's Capital Adequacy Ratio (BCAR) depicts the quantitative relationship between a rating unit's balance sheet strength and key financial risks that could impact such strength. As the foundation of financial security, balance sheet strength is critical to the determination of a rating unit's ability to meet its current and ongoing obligations. By establishing a guideline for the net required capital needed to support balance sheet strength, BCAR can assist analysts in differentiating among the financial strength of insurers and in determining whether a rating unit's capitalization is appropriate for its risk profile. The analysis of BCAR alone does not decide the balance sheet strength assessment. Other factors that can impact the balance sheet strength analysis include: liquidity, quality of capital, dependence on reinsurance, quality and appropriateness of reinsurance, asset/liability matching, reserve adequacy, stress tests, internal capital models, and the actions or financial condition of an affiliate and/or holding company, which may include a BCAR calculation at the holding company/consolidated level. Similarly, a rating is more than a balance sheet strength assessment and includes evaluations of a rating unit's operating performance, business profile, and enterprise risk management (**Exhibit A.1**).

Exhibit A.1: Best's Credit Rating Process



Thus, in many cases, insurers with similar capital positions might be assigned different ratings based on the integration of other key rating factors.

Best's Capital Adequacy Ratio Model - P/C, US

This criteria procedure and its accompanying model are used in the evaluation of balance sheet strength for those property/casualty insurers that file US statutory statements. Analysts have the option to modify the factors outlined in the following sections to reflect actual experience if appropriate data is provided for review.

B. Overview of BCAR

Calculating a rating unit's BCAR requires calculating its net required capital—namely the capital needed to support the financial risks of the rating unit associated with the exposure of its assets and underwriting to adverse economic and market conditions—and determining its capital available to support these risks. **Exhibit B.1** details the exact formula for calculating BCAR.

Exhibit B.1: The BCAR Formula

$$\mathbf{BCAR} = \left(\frac{\mathbf{Available\ Capital} - \mathbf{Net\ Required\ Capital}}{\mathbf{Available\ Capital}}\right) \times \mathbf{100}$$

The BCAR model calculates a rating unit's net required capital at different confidence levels, resulting in a BCAR score for each of these levels. Since the difference between a rating unit's available capital and its net required capital is expressed as a ratio to available capital, a BCAR score expresses the extent of the excess or shortfall as a percentage of available capital. A positive score at a particular confidence interval indicates the rating unit's available capital is in excess of its net required capital, whereas a negative score indicates the rating unit's available capital has fallen short of its net required capital. **Exhibit B.2** contains a sample rating unit's BCAR calculations.

Exhibit B.2: Sample BCAR Calculation

Net Required Capital (NRC)

	VaR 95		VaR 99		VaR 99.5		VaR 99.6	
	Required Capital Amount	% Gross Required Capital	Required Capital Amount	% Gross Required Capital	Required Capital Amount	% Gross Required Capital	Required Capital Amount	% Gross Required Capital
B1 Fixed Income Securities Risk	24,760	8	27,721	7	28,671	6	29,216	6
B2 Equity Securities Risk	58,950	20	77,400	19	84,450	17	85,980	16
B3 Interest Rate Risk	9,495	3	13,405	3	15,080	3	15,639	3
B4 Credit Risk	10,012	3	11,846	3	13,842	3	14,926	3
Total	**103,217**	**34**	**130,372**	**32**	**142,043**	**29**	**145,761**	**28**
B5 Loss & LAE Reserves Risk	69,886	23	105,551	26	119,715	25	124,175	24
B6 Net Written Premiums Risk	61,779	21	93,674	23	106,278	22	110,233	21
Total	**131,665**	**44**	**199,225**	**49**	**225,993**	**46**	**234,408**	**45**
B7 Business Risk	3,080	1	3,080	1	3,080	1	3,080	1
B8 Catastrophe Risk	62,000	21	77,000	19	115,000	24	140,000	27
Gross Required Capital (GRC)	**299,743**	**100**	**409,677**	**100**	**486,116**	**100**	**523,249**	**100**
Less: Covariance Adjustment	164,697	55	221,923	54	262,161	54	280,114	54
Net Required Capital (NRC)	**135,265**	**45**	**187,753**	**46**	**223,955**	**46**	**243,135**	**46**

Available Capital

Capital & Capital Adjustments	Amount	% to Reported Capital
Reported Capital (Surplus)	**180,000**	**100**
Equity Adjustments:		
Provision for Reinsurance	1,000	1
Unearned Premium Reserve Equity	16,250	9
Loss Reserves Equity	15,433	9
Fixed Income Equity	14,400	8
Other Adjustments:		
Surplus Notes	0	0
Off-Balance Sheet Losses	0	0
Future Dividends	0	0
Protected Cell Surplus	0	0
Goodwill & Intangibles	0	0
Available Capital (AC)	**227,083**	**126**

Effective Tax Rate = 20.0%

Best's Capital Adequacy Ratio

BCAR = (AC - NRC) / AC	VaR 95	VaR 99	VaR 99.5	VaR 99.6
	40.4	**17.3**	**1.4**	**-7.1**

Net Required Capital Components

The BCAR model computes the amount of capital required to support three broad risk categories: investment risk, credit risk, and underwriting risk. These three risk categories are further subdivided into eight separately analyzed risk components (outlined in **Exhibit B.3**). A rating unit's gross required capital is the sum of the capital requirements for these eight components.

Exhibit B.3: Required Capital Risk Components

Required Capital
B1 Fixed Income Securities
B2 Equity Securities
B3 Interest Rate
B4 Credit
B5 Net Loss and LAE Reserves
B6 Net Premiums Written
B7 Business Risk
B8 Potential Catastrophe Losses

As displayed in **Exhibit B.3**, the BCAR model includes a capital requirement B8 for the potential catastrophe losses. The net required capital formula reduces gross required capital for covariance to account for the assumed statistical independence of several of the individual components (**Exhibit B.4**).

Exhibit B.4: Net Required Capital Formula

$$Net\ Required\ Capital = \sqrt{(B1)^2 + (B2)^2 + (B3)^2 + (0.5 * (B4))^2 + [\big(0.5 * (B4)\big) + (B5)]^2 + (B6)^2 + (B8)^2} + (B7)$$

Understanding the Required Capital Risk Components

Total investment risk, which includes three main risk components—B1 fixed income securities, B2 equity securities, and B3 interest rate—applies capital charges to different asset classes based on the risk of default, illiquidity, and/or market value declines in both equity and fixed income securities.

The B4 credit risk category applies capital charges to different receivable balances to quantify third-party default risk. Capital charges are ascribed to recoverables from all reinsurers, including affiliates, based on the Best's Issuer Credit Rating (ICR) of the reinsurer and the duration of the recoverable. Required capital for credit risk may be modified by the rating analyst after taking into account any collateral offsets for reinsurance balances and the rating unit's dependence on its reinsurance program. Also included in the credit risk component are charges for agents' balances and other miscellaneous receivables.

Underwriting risk encompasses B5 net loss and loss adjustment expense (LAE) reserves, B6 net premiums written, and B8 potential catastrophe losses. The loss reserve component requires an amount of capital based on the risk inherent in a rating unit's loss reserves, adjusted for AM Best's assessment of its reserve equity. The net premiums written component requires capital based on the

pricing risk inherent in a rating unit's mix of business. Required capital for the reserve and premium components may be increased by an additional surcharge for "excessive" growth in exposure.

B8 potential catastrophe loss is included in the calculation of the rating unit's required capital. This allows the required capital amount to increase at higher confidence levels, whereas the amount of available capital would remain the same for each confidence level.

Collectively, these seven risk components have typically generated most of a rating unit's gross required capital, with the B7 business risk component typically generating minimal capital requirements for off-balance-sheet items. A rating unit's gross required capital is the amount of capital needed to support all risks were they to develop simultaneously.

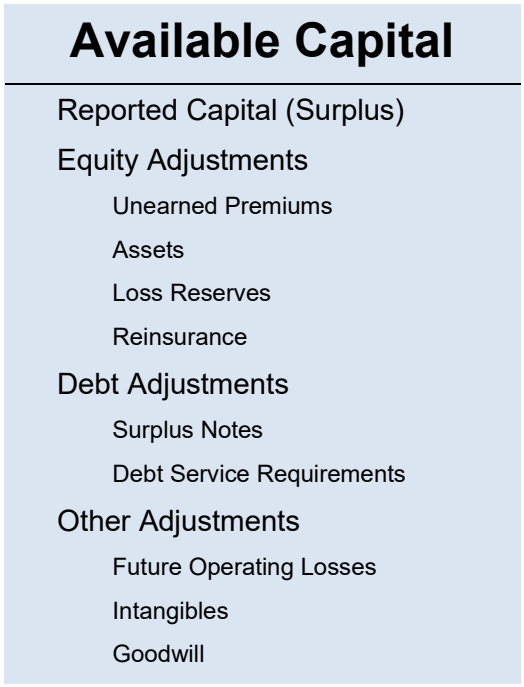
Covariance

As outlined in **Exhibit B.4**, AM Best utilizes a "square-root rule" covariance calculation that recognizes the assumed statistical independence of many of the risk components. This covariance adjustment essentially says that it is unlikely for these independent risk components to develop simultaneously. B7 business risk is excluded from the covariance adjustment as AM Best expects a rating unit to maintain capital for its business risks without the benefit of diversification.

Available Capital Components

The starting point for available capital is the financial statement of the entity or entities being evaluated. A rating unit's available capital is determined by making a series of adjustments to the capital (surplus) reported in its financial statements. These adjustments may increase or decrease reported capital and result in a more economic and consistent view of capital available to a rating unit, which in turn allows for a more comparable capital adequacy evaluation. They serve to even the playing field and compensate for certain economic values not included in the filed financials. Available capital may be further adjusted for other items, such as debt-service requirements, goodwill, and other intangible assets.

Exhibit B.5: Typical Components of Available Capital



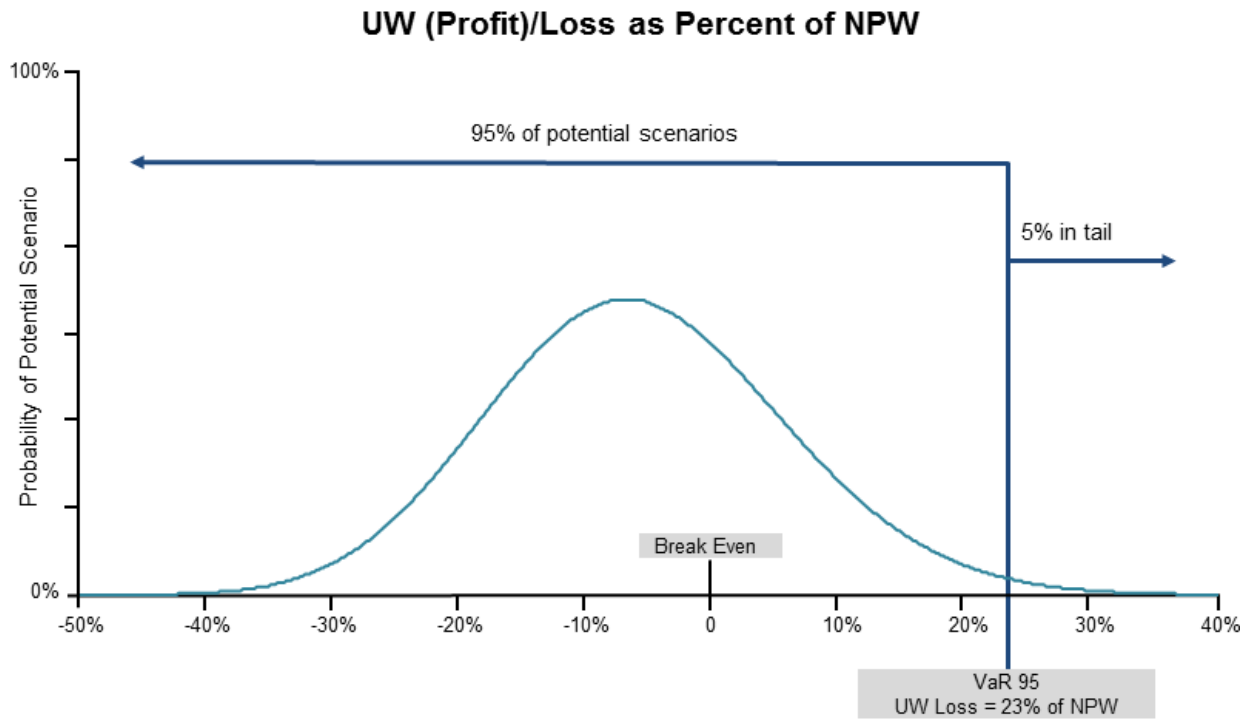
Value at Risk (VaR)

The basis of risk measurement for BCAR models is Value at Risk (VaR). VaR is a statistical technique used to measure the amount of risk within an organization over a selected time horizon. VaR allows for more consistent calibration of the BCAR model's risk factors across its various risk components. Within the model, VaR is applied to the risks that are typically the most material to an insurer.

VaR can be used to evaluate the amount of risk for an individual item, for a portfolio of items, or for the organization as a whole. It requires three pieces of information to evaluate the item at risk: a time horizon, a confidence level, and a probability distribution of possible outcomes that can occur over the selected time period. The key component of VaR is the probability distribution of potential outcomes; that probability distribution can be based on a collection of observed historical outcomes, a theoretical distribution, professional judgment, or a combination of these.

VaR is used to find the value on the probability distribution such that the chance of observing an outcome less than or equal to that value equals the confidence level. For example, suppose a rating unit has estimated the potential for an underwriting profit or loss on a portfolio of policies as shown in **Exhibit B.6.**

Exhibit B.6: Sample Probability Distribution



If management wants to hold enough capital to be confident that it can cover 95% of all potential outcomes, then it needs to find the value on the probability distribution such that 95% of all potential outcomes are less than or equal to that value. In this example, the size of loss where this occurs is at 23% of NPW.

As shown in **Exhibit B.7**, if the NPW amount is $100,000, then the VaR 95% value in dollars is $23,000 (23% of $100,000).

Exhibit B.7: Value at Risk (VaR) Illustration

Statement Amount	VaR Confidence Level (%)	Capital Factor	Loss Amount at VaR Confidence Level (Statement Amount * Capital Factor)	Exceedance Probability* (100% - VaR Confidence Level)
100,000	95	0.23	23,000	5.0
	99	0.30	30,000	1.0
	99.5	0.34	34,000	0.5
	99.6	0.35	35,000	0.4

**Probability that an actual observed loss will exceed the loss amount of the VaR confidence level.*

This means that 95% of all potential outcomes will be less than $23,000 and that there is only a 5% chance that an underwriting loss of more than $23,000 could occur, and therefore a 5% chance of insolvency (provided that the initial amount of available capital carried was at least $23,000).

If management wanted to be more conservative than a 5% chance of insolvency, then a confidence level of 99% could be chosen to set a target capital level. At this point, management would have to find the value on the probability distribution such that 99% of the potential outcomes are less than or equal to that value. **Exhibit B.7** shows the value where this occurs is 30% of NPW. This means that for the same $100,000 of NPW, management would need to hold $30,000 of capital to be 99% confident that the actual observed underwriting loss would be covered. In this case, there would only be a 1% chance that an underwriting loss of more than the VaR 99 value of $30,000 could occur, and therefore only a 1% chance of insolvency.

The drawback to using VaR as a metric for measuring risk is that VaR only looks at a single value on the probability distribution and provides no information about the other potential values that are beyond that single value (i.e., in the tail of the distribution). As such, capital adequacy models based on VaR tend to be centered solely on the probability of ruin, or insolvency. However, for the assessment of relative balance sheet strength, it is important to know what those other possible outcomes could be. AM Best addresses this issue by calculating required capital at different confidence levels using the VaR metric: the 95th percentile, the 99th percentile, the 99.5th percentile, and the 99.6th percentile. By calculating BCAR at multiple confidence levels, AM Best can gain insight into the balance sheet strength of the rating unit and the rating unit's ability to withstand tail events. AM Best also calculates required capital at the 99.8th percentile to facilitate discussion of tail risk during the evaluation of enterprise risk management within the rating process.

BCAR Interpretation of Capital

Exhibit B.8 provides a reasonable guide to BCAR scores and their associated assessments. As mentioned, the BCAR assessment is one factor considered within a rating unit's overall balance sheet strength assessment.

Exhibit B.8: BCAR Assessments

VaR Confidence Level (%)	BCAR	BCAR Assessment
99.6	> 25 at 99.6	Strongest
99.6	> 10 at 99.6 & ≤ 25 at 99.6	Very Strong
99.5	> 0 at 99.5 & ≤ 10 at 99.6	Strong
99	> 0 at 99 & ≤ 0 at 99.5	Adequate
95	> 0 at 95 & ≤ 0 at 99	Weak
95	≤ 0 at 95	Very Weak

Rating units that are expecting material changes over the next year are evaluated on both an "as is" and an "as will be" basis to better gauge the direction in which capital adequacy is moving.

Sensitivity Calculations

AM Best analysts may supplement their initial rating unit BCAR calculation by performing various sensitivity calculations. These analyses can quantify the capital required to support future business

plans, the impact of pro forma transactions, or a projected capital position. They can also reflect other changes, such as those expected to affect business mix and the investment portfolio. The rating analyst can also use the model to incorporate a number of stress scenarios into the rating analysis. These sensitivity calculations quantify the extent of the impact a stress scenario could have on a rating unit's capital position after such an event occurs. After calculating both a rating unit's standard and stressed BCAR, AM Best compares the results of the two analyses. If a rating unit's standard BCAR assessment were to deteriorate after a reasonable stress test such that its stressed BCAR assessment fell considerably and the potential for recovery from the capital shortfall was unlikely, the rating unit may receive a revised BCAR assessment that differs from its standard BCAR assessment. The extent of sensitivity analysis performed on a rating unit's capitalization varies by rating unit and situation.

Market Adjustments

The BCAR model allows the rating analyst to factor in various market and/or economic conditions. Examples that can impact capitalization include interest rate changes, the stage of the underwriting cycle, changing reinsurance products, and reinsurance dependence. The ability of the BCAR model to respond to these issues assists in the evaluation of the rating unit's balance sheet strength.

C. Technical Review of the BCAR Formula

Economic Scenario Generator

An economic scenario generator (ESG) is a computer model that will randomly simulate thousands of possible values for a variety of economic or financial variables over a series of selected future time periods. ESG models are designed to simulate the observed and/or perceived relationships among the different economic or financial variables of the particular economy being modeled. An ESG does not predict the path an economy will take, but instead produces a collection of possible paths that an economy can take.

As noted in the following sections, AM Best uses the output from a third-party ESG to develop industry-level risk factors. The ESG-calculated risk factors act as a baseline and can then be adjusted for a company's specific profile. The variables simulated in the ESG used by AM Best include interest rates, stock market returns, bond defaults, and real estate price movements.

Treatment of Net Required Capital Components

B1 Fixed Income Securities and B2 Equity Securities

In order to calculate the risk factors at various confidence levels for the most frequently owned assets of insurers, AM Best uses the output from ten thousand simulations produced by the ESG to develop probability distributions for the potential movements in the market value of specific assets, the potential defaults on specific fixed income assets, and the potential movements in interest rates.

Government Bonds

There is no capital charge for "AAA" rated sovereign bonds. All lower rated sovereign bonds are risk charged in line with their respective global credit rating. Programs backed by sovereign governments typically receive risk charges in accordance with the rating of the corresponding sovereign debt.

Nonaffiliated Bonds

The BCAR model's baseline bond risk charges are based on ESG-simulated bond defaults. **Appendix 1** contains the baseline charges for bonds based on its ratings and duration at the different confidence intervals.

In generating the bond defaults, the ESG assumed lower-rated bonds have greater default risk than higher-rated bonds and also assumed that—since defaults were simulated at annual intervals into the future—bonds with maturity dates further out into the future have more opportunities to default. Therefore, bonds with longer maturity dates show greater default risk factors than bonds with shorter terms to maturity. The ESG simulated potential defaults each future year for a period of no more than ten years. The simulated defaults were discounted to present value based on the number of years into the future that the simulated defaults occurred, using an annual rate of 4%. They were also reduced to allow for an assumed recovery rate on the value of bonds defaulted. The assumed recovery rate varies based on the credit quality of the bonds that were simulated to default. The recovery rate varies from an assumed 55% recovery for the highest-rated bonds to an assumed 20% recovery on the lowest-rated bonds.

Using information usually provided in the rating unit's Best's Supplemental Rating Questionnaire (SRQ), AM Best applies risk charges for potential bond defaults based on the credit quality and maturity distribution of the rating unit's bond portfolio. The rating unit's portfolio-specific bond default risk charges are calculated at four confidence levels—the 95th percentile, the 99th percentile, the 99.5th percentile, and the 99.6th percentile.

In cases where there are discrepancies between SRQ data and the rating unit's filed statutory statements, the BCAR will "true-up" to match the fixed income totals reported by NAIC Class in the statutory statements. For example, certain RMBS and CMBS securities held by US insurers can be mapped to the NAIC Class, as opposed to the credit rating reported on the SRQ.

Mortgage Loans

Risk factors applied to mortgage loans are based on the NAIC Risk Based Capital Working Group's study of commercial mortgages. The baseline factors in BCAR are based on the Class 3 Commercial Mortgage risk factor at the 92nd percentile and extrapolated further out into the tail of the distribution to arrive at the factors needed for the various confidence levels used in BCAR. For those insurers with a material exposure to mortgage loans, a closer review could result in lower risk factors if the portfolio consists of higher-rated commercial mortgages, or it could result in a higher risk factor if the portfolio consists of a large percentage of loans that have been restructured or are in or near default.

Cash and Short-Term Investments

The 0.3% risk charge applied to cash balances represents the risk that cash deposited in a banking institution might be uncollectible if the bank becomes insolvent. A 0.3% risk charge is also applied to cash equivalents. Other cash-like assets expected to mature within one year receive a baseline 1% risk charge.

Publicly Traded Common Stocks

Insurers who invest in equities are exposed to fluctuations in the market value of those assets. As a starting point, AM Best generates baseline risk factors for market volatility based on the Beta of the rating unit's common stock portfolio relative to the S&P 500 Index. The ESG created ten thousand simulations of possible one-year changes to the S&P 500 Index; the changes that correspond to the 95th, 99th, 99.5th, and 99.6th percentiles are used as the industry baseline risk charges. The rating unit's portfolio Beta is applied to these changes after adjusting the rating unit's Beta for the reliability of the calculated Beta. The Beta represents the level of movement in the market value of the common stocks owned by the rating unit relative to the stock market as a whole over a specified period of time. AM Best uses the R-Squared statistic to measure the reliability of the calculated Beta. (**Exhibit C.1**).

Exhibit C.1: Common Stock Portfolio "Beta" and "R-Squared"

Beta can take on any value, positive or negative. If a rating unit has a Beta of 1.00, this means that should the stock market index increase X%, then the value of the rating unit's stock portfolio will increase by X%. A Beta of 1.50 means that if the stock market index increases X%, then the value of that rating unit's stock portfolio will increase by 1.50 times X%. A negative 1.00 Beta means that if the stock market index increases X%, then the value of the rating unit's stock portfolio will decrease by X% (i.e., the value of a portfolio with a negative Beta moves in the exact opposite direction of the index).

R-Squared is a statistic calculated by comparing historical movements in a stock portfolio versus historical movements in the stock market index. R-Squared can only take on values from 0.00 to 1.00, where a value of 0.00 implies a poor linear fit of the data (low reliability), and a value of 1.00 implies a perfect linear fit (high reliability).

The same risk factors are used for both affiliated and non-affiliated common stocks that are publicly traded. The calculation of the portfolio Beta excludes the effect of any hedging programs, as credit for hedging programs will only be given after analyst review of the hedging program (see commentary on derivative assets). AM Best uses the Beta and R-Squared provided in the rating unit's SRQ. Exhibit C.2 shows the baseline risk factors for publicly traded common stocks at the different confidence levels assuming a Beta of 1.00.Exhibit C.2: Publicly Traded Common Stocks*

VaR Confidence Level (%)	Baseline Capital Factor (%)
95.0	25
99.0	38
99.5	43
99.6	44

**Traded in US Stock Markets*

Preferred Stocks

As a starting point, AM Best assigns risk factors to publicly traded preferred stocks based on the industry level simulated default risk of NAIC Class 4 bonds, using the US property/casualty industry mix of bonds in rating and maturity. For those rating units that have demonstrated their willingness and ability to hold onto these investments for the long term, the publicly traded preferred stock portfolio can be allocated to individual NAIC classes using information provided in the statutory statement and then assigned corresponding risk factors based on the bond default risk factors by NAIC class. For those rating units that historically have actively traded their preferred stocks, or are exposed to sudden shock losses that could force a quick sale, preferred stocks may receive risk factors based on the market price volatility of publicly traded common stocks.

Investment in Affiliates

Investment in Affiliated Insurers

For those investments in affiliated insurers that are not consolidated into a rating unit, a baseline risk charge of 100% is applied to the investment in affiliates, regardless of which investment schedule it is recorded in—i.e., surplus notes recorded as other investments in Schedule BA. For equity investments in affiliated insurers, the baseline risk charge may be adjusted if AM Best determines that there is capital flexibility in the affiliate based on its business plan and operating performance.

If the amount of investments in affiliates represents a material portion of the rating unit's available capital, AM Best may perform a supplemental BCAR analysis that removes the affiliated investments from both available capital and required capital. This supplemental analysis can be performed regardless of whether the affiliate is a property/casualty or life/health insurer.

Investment in Non-Insurance Affiliates

There are a number of elements considered when determining the appropriate risk charge for investments in non-insurance affiliates. If the investment is publicly traded, it might receive a lower risk charge than a privately placed investment because privately placed investments generally are viewed as being less liquid. However, if the insurer owns a large proportion of a publicly traded affiliate, it might require regulatory or shareholder approval to sell it, making the asset less liquid. In another instance, the sale of an affiliated investment in a stress situation could give the buyer leverage during the negotiation of the sale price, resulting in a realized value for the asset that is lower than the reported value. These issues make these types of assets less liquid than other publicly traded investments with risks that resemble those of a privately held subsidiary.

AM Best charges the full statutory carrying value of the non-insurance affiliate to the parent. Unless a property/casualty insurer is actively committed to selling a non-insurer with proceeds to be reinvested in the property/casualty operations, the baseline treatment is a 100% capital charge. In this regard, AM Best presumes that the net asset value of the affiliate is needed to support its own operations and is not available to support the insurance operation.

Real Estate

Risk factors for real estate are based on simulated movements in an index that incorporates some elements of the National Council of Real Estate Investment Fiduciaries Property Index (NPI), which measures the total rate of return of a large pool of individual commercial real estate properties acquired for investment purposes. The same risk charges are applied to company-occupied real estate and real estate held for investment purposes.

Other Investments

The majority of assets in this category are from Schedule BA of the statutory statement (Other Long Term Invested Assets Owned). The baseline risk factors for other investments are the industry baseline common stock risk factors but adjusted 10% higher. These factors were selected after a review of the ESG-simulated market volatility of more than 30 hedge fund indices. The risk factors may be reduced if the insurer provides more detail on the types of investments, such as the volatility of the investments, the liquidity of the investments, correlations within the portfolio of investments, correlations to other risk categories such as underwriting risk, and how the rating unit manages the individual and overall risks created by this portfolio of assets. Any investments in affiliates recorded in this asset category are initially assigned a risk charge of 100%.

Special Purpose Investment Subsidiaries

The net required capital to support the underlying assets and liabilities of a special purpose affiliate is charged to the parent company. For example, a downstream holding company that holds special-purpose real estate investments would receive the capital charges from the real estate asset category rather than the baseline charge of 100% used for investment in affiliates.

Intercompany Loans

The baseline treatment for intercompany loans is a 100% capital charge. However, if an intercompany loan that normally is recorded as a liability is given as credit to the borrower's available capital by AM Best, then the amount of credit given to the borrower is directly removed from the available capital and the investments of the lender. The intent is to avoid giving capital credit in more than one rating unit.

Derivative Assets

As the baseline treatment, derivatives shown as an asset receive a 100% risk charge to the asset value reported in the financial statement. However, both the asset value and the risk charge may be modified once information about the derivative itself and the rating unit's derivative program is ascertained. The asset value may be replaced with the notional value of the underlying investments if that is a better proxy for the exposure. In some instances when a derivative is considered to be purely speculative in nature, the required capital calculation may be moved to the business risk page. This results in a direct addition to net required capital rather than enabling the derivative to remain on the investment risk page and benefit from the covariance credit when calculating net required capital. Where possible, if the derivative is hedging a specific quantifiable risk captured in the BCAR model, AM Best may reduce the required capital for that risk. In such cases, AM Best will remove the asset value of the derivative from available capital.

In addition to determining whether a derivative is for hedging or speculative purposes, AM Best's evaluation may include, but is not limited to, a review of the following factors:

- The counterparty credit risk involved;
- The liquidity of the derivative;
- The volatility of the asset value;
- The potential maximum downside loss;
- The correlation of the derivative asset value with the value of the related index or investment;
- The remaining term of the derivative versus the term of the associated investments or liabilities;
- The relationship of the triggering event to the current economic environment; and
- The size, purpose, expertise, and track record of the rating unit's derivative program.

Securities Lending Reinvested Collateral

As a baseline, reinvested collateral is charged a risk factor of 10%. This factor can be adjusted following a review of the types of investments in which the collateral was reinvested.

Catastrophe-Exposed Investments

Investments in non-affiliated sidecars, catastrophe bonds, or other investments that are exposed to a sudden loss of value due to the occurrence of a catastrophe are initially assigned a baseline risk charge of 100% on the investment page. However, these investments may be removed directly from available capital when they are a material portion of surplus or added directly to the net probable maximum loss (PML) on a pre-tax basis, depending on a review of their exposure, attachment points, perils insured, term to maturity, etc.

Foreign Investments

For insurers with a material amount of foreign investments in a particular investment category, the risk charge for that asset category may be increased to account for the increase in volatility and/or decrease in liquidity associated with those foreign markets, financial systems, and economies.

Asset Concentration Adjustment

For asset classes that do not currently reflect concentration risk in their capital factors, such as bonds, preferred stocks, and mortgage loans, AM Best may double the asset risk charge for single, large investment holdings that are greater than 10% of surplus. This additional capital requirement applies to amounts in excess of the single investment limit, with the baseline charge for that investment type applying to the amount less than 10% of surplus. If a rating unit has significantly concentrated investments in any particular asset class, AM Best may adjust the respective asset class charge to account for this concentration.

Spread of Risk Factor Adjustment

The BCAR model generates additional required capital to support investment risk when diversification of the portfolio is lower, using a size factor corresponding to the spread of risk among all major asset

classifications. Generally, no additional required capital is generated from this adjustment for rating units with more than $500 million in invested assets; rating units with less than $10 million in invested assets could receive as much as a 50% surcharge that is added to their baseline capital requirement for investments.

Exhibit C.3 contains a sample rating unit's investment risk charges and calculations.

Exhibit C.3: B1 Fixed Income Securities and B2 Equity Securities Example

Investments	Statement Value	Adjustment	Adjusted Amount	Capital Factors (%)				Required Capital (Adjusted Amount * VaR Capital Factor)			
Bonds:				VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 95	VaR 99	VaR 99.5	VaR 99.6
U.S. Gov't.	90,000	0	90,000	0.1	0.3	0.4	0.4	90	270	360	360
Class 1	343,000	0	343,000	0.6	0.9	1.0	1.1	2,058	3,087	3,430	3,773
Class 2	110,000	0	110,000	3.3	4.3	4.6	4.7	3,630	4,730	5,060	5,170
Class 3	20,000	0	20,000	9.9	11.2	11.6	11.7	1,980	2,240	2,320	2,340
Class 4	5,000	0	5,000	20.9	22.3	22.8	22.9	1,045	1,115	1,140	1,145
Class 5	4,000	0	4,000	42.1	42.4	42.6	42.7	1,684	1,696	1,704	1,708
Class 6	2,000	0	2,000	54.2	54.6	54.7	54.8	1,084	1,092	1,094	1,096
Affiliated	3,000	0	3,000	100.0	100.0	100.0	100.0	3,000	3,000	3,000	3,000
Total Bonds	**577,000**	**0**	**577,000**	**2.5**	**2.9**	**3.1**	**3.2**	**14,571**	**17,230**	**18,108**	**18,592**
Preferred Stocks:											
Non-affiliated (Public)	20,000	0	20,000	25.0	38.0	43.0	44.0	5,000	7,600	8,600	8,800
Class 1	14,000	0	14,000	0.6	0.9	1.0	1.1	84	126	140	154
Class 2	12,000	0	12,000	3.3	4.3	4.6	4.7	396	516	552	564
Class 3	10,000	0	10,000	9.9	11.2	11.6	11.7	990	1,120	1,160	1,170
Class 4	9,000	0	9,000	20.9	22.3	22.8	22.9	1,881	2,007	2,052	2,061
Class 5	8,000	0	8,000	42.1	42.4	42.6	42.7	3,368	3,392	3,408	3,416
Class 6	6,000	0	6,000	54.2	54.6	54.7	54.8	3,252	3,276	3,282	3,288
Non-Affiliated (Private)	5,000	0	5,000	100.0	100.0	100.0	100.0	5,000	5,000	5,000	5,000
Affiliated (Public)	4,000	0	4,000	25.0	38.0	43.0	44.0	1,000	1,520	1,720	1,760
Affiliated (Private)	3,000	0	3,000	100.0	100.0	100.0	100.0	3,000	3,000	3,000	3,000
Total Preferred Stocks	**91,000**	**0**	**91,000**	**26.3**	**30.3**	**31.8**	**32.1**	**23,971**	**27,557**	**28,914**	**29,213**
Common Stocks:											
Non-Affiliated (Public)	80,000	0	80,000	25.0	38.0	43.0	44.0	20,000	30,400	34,400	35,200
Non-Affiliated (Private)	5,000	0	5,000	100.0	100.0	100.0	100.0	5,000	5,000	5,000	5,000
Affiliated (Public)	10,000	0	10,000	25.0	38.0	43.0	44.0	2,500	3,800	4,300	4,400
Affiliated (Private)	5,000	0	5,000	100.0	100.0	100.0	100.0	5,000	5,000	5,000	5,000
Total Common Stocks	**100,000**	**0**	**100,000**	**32.5**	**44.2**	**48.7**	**49.6**	**32,500**	**44,200**	**48,700**	**49,600**
Mortgage Loans	1,000	0	1,000	3.3	4.9	5.4	5.6	33	49	54	56
Real Estate:											
Company Occupied	30,000	0	30,000	12.0	17.5	19.5	20.2	3,600	5,250	5,850	6,060
Investments	10,000	0	10,000	12.0	17.5	19.5	20.2	1,200	1,750	1,950	2,020
Total Real Estate	**40,000**	**0**	**40,000**	**12.0**	**17.5**	**19.5**	**20.2**	**4,800**	**7,000**	**7,800**	**8,080**
Contract Loans	1,000	0	1,000	5.0	5.0	5.0	5.0	50	50	50	50
Cash & Cash Equivalents	25,000	0	25,000	0.3	0.3	0.3	0.3	75	75	75	75
Short-Term Investments	15,000	0	15,000	1.0	1.0	1.0	1.0	150	150	150	150
Derivative Asset	3,000	0	3,000	100.0	100.0	100.0	100.0	3,000	3,000	3,000	3,000
Securities Lending Reinvested Collateral	9,000	0	9,000	10.0	10.0	10.0	10.0	900	900	900	900
Other Investments	10,000	0	10,000	27.5	41.8	47.3	48.4	2,750	4,180	4,730	4,840
Other Assets	5,000	0	5,000	20.0	20.0	20.0	20.0	1,000	1,000	1,000	1,000
Total Investments	**877,000**	**0**	**877,000**	**9.5**	**12.0**	**12.9**	**13.1**	**83,800**	**105,391**	**113,481**	**115,556**
						Multiply by: Spread of Risk Factor		**1.00**	**1.00**	**1.00**	**1.00**
						B1 and B2 Required Capital		**83,800**	**105,391**	**113,481**	**115,556**

B3 Interest Rate Risk

Interest rate risk represents the potential loss a rating unit would incur if it were forced to sell its fixed income assets during a period of rising interest rates. As interest rates rise, the market value of the fixed income assets will decline and, if the rating unit needs to sell the fixed income assets, it would be at a price lower than what is currently considered in the calculation of available capital. Since the BCAR model makes an adjustment to surplus for fixed income equity, the model is effectively putting the fixed income assets on the balance sheet at market value after the increase in interest rates. Rating

units that maintain a high level of exposure to short-term cash needs—most likely those with a high gross catastrophe PML or other potential large loss, such as terrorism—are the most exposed to interest rate risk because they could be forced to sell fixed income assets on short notice in order to pay claims. The illustrations below refer only to the gross catastrophe PML, although another shock loss event may be substituted if it is larger.

AM Best uses increases in interest rates that reflect the confidence level being used to generate the required capital for interest rate risk. Based upon the ESG's simulated potential movements in the interest rate on the five-year US treasury over the next one year time horizon, AM Best selected the following changes in interest rates: 170 basis points at the 95th percentile, 240 basis points at the 99th percentile, 270 basis points at the 99.5th percentile, and 280 basis points at the 99.6th percentile. These changes in interest rates are used to estimate the interest rate risk on the market value of bonds, preferred stocks, and mortgage loans.

Rating Units with Natural Catastrophe Exposure

Using the base assumption that the rating unit's gross PML for catastrophes is the maximum exposure an insurer has to interest rate risk, the interest rate risk calculation uses the ratio of the rating unit's pre-tax gross 1-in-100 year catastrophe PML from the all-perils combined per occurrence curve to its liquid assets. This factor is applied to the decline in the market value of the total fixed income portfolio following the rise in interest rates. By relating the rating unit's PML to all liquid assets first, AM Best assumes a rating unit is no more likely to liquidate a fixed income asset than it is to liquidate any other liquid asset.

AM Best applies an exposure percentage (minimum 10%) against the rating unit's decline in market value after the rise in interest rates, recognizing that there are other reasons for a rating unit to have a short-term need for cash. Interest rate risk is evaluated at the different confidence levels—the 95th percentile, the 99th percentile, the 99.5th percentile, and the 99.6th percentile.

A key assumption in the calculation comes from AM Best's process of marking bonds to market using a fixed income equity adjustment to available capital (subject to caps and taxes). Because AM Best adjusts fixed income securities to market value each year through its re-evaluation of capitalization, only the incremental risk that a capital loss will be realized over the next year needs to be considered. Any risk of lost future income will be reflected at subsequent evaluations. Therefore, only a rating unit's short-term cash needs—such as the occurrence of its PML—would trigger a decline in capitalization over the next year.

Exhibit C.4 illustrates the interest rate risk calculation at the various confidence levels.

Exhibit C.4: B3 Interest Rate Risk Example

	Average Contract Maturity	Estimated Duration	Market Value	Market Decline due to 170 BP Rise (Estimated Duration * Market Value *1.7%)	Market Decline due to 240 BP Rise (Estimated Duration * Market Value *2.4%)	Market Decline due to 270 BP Rise (Estimated Duration * Market Value *2.7%)	Market Decline due to 280 BP Rise (Estimated Duration * Market Value *2.8%)
Fixed Income Securities							
Bonds	4	3.5	600,000	35,700	50,400	56,700	58,800
Preferred Stocks	8	7.6	100,000	12,920	18,240	20,520	21,280
Mortgage Loans	10	9.5	2,000	323	456	513	532
Totals			**702,000**	**48,943**	**69,096**	**77,733**	**80,612**

Catastrophe Exposure Percentage Calculation:	**VaR 95**	**VaR 99**	**VaR 99.5**	**VaR 99.6**
Gross PML	150,000	150,000	150,000	150,000
Liquid Assets	775,000	775,000	775,000	775,000
PML To Liquid Assets Percentage (10% minimum)	**19.4**	**19.4**	**19.4**	**19.4**
B3 Required Capital	**9,495** (= 19.4% * 48,943)	**13,405** (= 19.4% * 69,096)	**15,080** (= 19.4% * 77,733)	**15,639** (= 19.4% * 80,612)

B4 Credit Risk

Reinsurance Recoverables

The BCAR model includes a charge for the credit risk associated with the potential inability of the insurer to collect from its reinsurers. The following types of reinsurance recoverables are included in the BCAR model for the calculation of credit risk: recoverables on paid losses, paid loss adjustment expenses (LAE), known case loss reserves, known case LAE reserves, incurred but not reported (IBNR) loss reserves, IBNR LAE reserves, and unearned premium.

The BCAR model uses factor tables based on stochastic simulations of reinsurer impairments to calculate the credit risk of the recoverables at the various confidence levels—the 95th percentile, the 99th percentile, the 99.5th percentile, and the 99.6th percentile. These credit risk factors reflect the credit quality of the reinsurers, the type of recoverable, the future time periods the recoverables are assumed to be collected, a 50% recovery rate applied to the loss, and an annual discount rate of 4% to present value the amount of recoverables uncollected due to the reinsurer impairment. Since impairments can occur at any point during a future year, discounting is done from the mid-point of the future year. As an example, an impairment that occurs in the fourth future year would be discounted 3.5 years.

The process of calculating credit risk begins with estimating the percentage of existing recoverables on reserves that will be collected in each future year. The BCAR model assumes that recoverables on reserves are collected within 30 years and estimates when those recoverables will be collected based on a combination of industry collection patterns that vary by Schedule P line of business and the rating unit's own mix of ceded reserves by Schedule P line of business. This collection pattern is applied to the ceded reserves for each reinsurer and any recoverables on paid losses, paid LAE, and unearned premium are added to the ceded reserve amounts that are collected within one year.

The BCAR model then uses the ICR of each reinsurer listed in the rating unit's Schedule F – Part 3 and aggregates the recoverables by rating and year. A set of risk factors by rating and year at the

corresponding VaR are multiplied against the rating unit's aggregated recoverables by rating and year to get the rating unit's required capital for credit risk at that VaR level. **Appendix 2** shows the credit risk factors for reinsurance recoverables at each VaR level. These tables were developed using a portfolio of 20 reinsurers and the assumption that each reinsurer is responsible for 5% of the recoverables. For insurers with a concentration of recoverables ceded to a small number of reinsurers, a qualitative assessment of the concentration risk will be done elsewhere in the balance sheet strength evaluation.

Reinsurers that do not have a published ICR, or have a published ICR of ccc+ or lower, initially receive a 100% impairment rate for all future time periods. This impairment rate is offset with a 50% recovery rate, resulting in an undiscounted risk charge of 50% for all future time periods. This 50% undiscounted risk charge is then discounted 6 months, using an annual rate of 4%, to reflect the assumption that any recoveries from these reinsurers will be collected within the next year. The same discounted risk factor is shown for years one through ten in Appendix 2 since these recoveries are assumed to be collected in year one. The initial discounted risk charges for unrated reinsurers may be reduced if adequate additional information about the unrated reinsurer is provided to AM Best. Such information may include the published ratings of other agencies.

For rating units with intercompany reinsurance transactions, AM Best eliminates the recoverables from the credit risk analysis of the rating unit's BCAR. Recoverables from affiliates that are not in the rating unit remain in the credit risk analysis portion of the BCAR.

Other Forms of Collateral

100% credit for funds held is given individually by reinsurer using the same collection pattern as the corresponding recoverables but capped at the amount of recoverables. AM Best will consider other forms of collateral, such as trust funds and letters of credit (LOCs), as an offset to reinsurance recoverable balances. At most, the amount of credit given for trusts and LOCs will be 90% of the risk factors used on the corresponding recoverables. However, the amount of credit given will vary based on a number of factors including, but not limited to the following: the quality and liquidity of assets in the trust, access to the funds in trust, type of LOC and whether the LOC is irrevocable and evergreen. Offsets that require certain conditions before the collateral is posted might not receive an offset credit until the collateral option is exercised, since there is no access to the collateral until the threshold has been triggered.

Reinsurance Dependence

AM Best includes an additional capital requirement, or surcharge, for rating units that analysts believe are excessively dependent on unaffiliated reinsurance, given their lines of business and financial resources. For these rating units, AM Best increases the overall credit risk charge for their recoverable balances, regardless of underlying credit quality. This additional charge reflects the increased exposure to reinsurance disputes and cash-flow problems the rating unit might face as a result of the higher dependence on reinsurance.

This increased exposure to dispute risk can have a severe impact on surplus. A rating unit with recoverables equal to five times its capital could lose 50% of its capital if 10% of its recoverables are successfully disputed by the reinsurer. In an effort to recognize this exposure to dispute risk, AM Best employs two reinsurance dependence tests. The first test compares the rating unit's unaffiliated recoverables-to-capital ratio to an industry composite benchmark recoverables-to-capital ratio, which is displayed in the BCAR model. The second test examines the rating unit's total ceded leverage to thresholds of five, seven, and ten times capital, resulting in respective risk charges of 15%, 20%, and 25% of recoverables from unaffiliated reinsurers. The rating unit's total ceded leverage is defined as its recoverables plus written premium ceded to unaffiliated reinsurers as a ratio to reported capital. This total ceded leverage test is forward looking, since it includes not only the existing recoverables, but also the potential exposure to be added in the upcoming year.

Generally, affiliates demonstrate a history of substantial support with minimal disputes on ceded balances; therefore, the BCAR model does not generate a reinsurance dependence factor for affiliated reinsurance. However, if the affiliated support is not sufficiently present or the quick transfer of funds from the affiliates to the ceding insurer is hindered and the amount of recoverables from the affiliates is material, a reinsurance dependence factor may be applied to the affiliated recoverables.

Credit Enhancements to Reinsurance Recoverables

If a ceding insurer's recoverables are insured by an unaffiliated third party, AM Best may reduce the risk charges to reflect the reduced credit risk. However, the reinsurance dependence factor might not change if the contract does not cover uncollectibility resulting from a dispute.

Federal Programs

Similar to the treatment of default risk on US federal government bonds—which assumes that the US federal government will not default on its commitments—no risk charge is applied to recoverables from the National Flood Insurance Program and the Federal Crop Insurance Program.

Pools and Associations

As a baseline, pools and associations are treated as "Not Rated" reinsurers. However, in those instances when additional information is provided, this baseline risk factor may be adjusted based on AM Best's opinion of the pool or association's creditworthiness.

Risk-Free Servicing Carrier Business

For ceded reinsurance associated with risk-free servicing carrier business, AM Best does not intend to charge for credit risk. However, the insurer is expected to provide information related to risk-free servicing carrier business in its SRQ in order for the model to be adjusted properly.

Agents' Balances and Other Receivables

AM Best applies a baseline 5% capital charge for agents' balances in the course of collection and deferred agents' balances, as well as a 10% charge for accrued retrospective balances. These balances can be reduced by valid collateral and contractual offsets. Any other uncollected premium balances that are concentrated within a single entity or are approaching the 90-day overdue threshold may be

assigned a higher capital charge. Other receivable balances generally are assessed a 5% charge and represent a minor overall capital requirement.

Exhibit C.5 illustrates the credit risk calculation at the various confidence levels.

Exhibit C.5: B4 Credit Risk Example

	Statement Value	Increase for Reserve Deficiency	Other Adjustments	Adjusted Amount	Capital Factors (%)				Required Capital for Reinsurance Recoverables and Other Receivables (Adjusted Amount * VaR Capital Factor)			
					VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 95	VaR 99	VaR 99.5	VaR 99.6
Receivable Balances:												
Gross Agents' Balance*	90,000	-	0	90,000	5.0	5.0	5.0	5.0	4,500	4,500	4,500	4,500
Reinsurance Recoverables:												
Affiliated	10,000	422	0	10,422	3.4	5.0	6.7	7.5	354	521	698	782
Less: Funds Held	2,000	0	0	2,000	3.4	5.0	6.7	7.5	68	100	134	150
Less: LOCs & Trusts**	3,000	0	0	3,000	3.1	4.5	6.0	6.8	93	135	180	204
Unaffiliated	150,000	6,324	0	156,324	3.4	5.0	6.7	7.5	5,315	7,816	10,474	11,724
Less: Funds Held	30,000	0	0	30,000	3.4	5.0	6.7	7.5	1,020	1,500	2,010	2,250
Less: LOCs & Trusts*	20,000	0	0	20,000	3.1	4.5	6.0	6.8	620	900	1,200	1,360
Net Reinsurance Recoverables	105,000	6,746	0	111,746	3.5	5.1	6.8	7.6	3,868	5,702	7,648	8,542
All Other Receivables**	1,809	-	0	1,809	4.5	4.5	4.5	4.5	81	81	81	81
Company Totals	**196,809**	**6,746**	**0**	**203,555**	**4.2**	**5.1**	**6.0**	**6.4**	**8,449**	**10,283**	**12,229**	**13,123**

	Indicated Reinsurance Dependence Factor	Adjustment to Reinsurance Dependence Factor	Selected Reinsurance Dependence Factor (Indicated + Adjustment)	Required Capital for Reinsurance Dependence (Required Capital for Reinsurance Recoverables and Other Receivables *(Selected Reinsurance Dependence Factor -1.0))				Minimum Required Capital for Reinsurance Dependence
				VaR 95	VaR 99	VaR 99.5	VaR 99.6	
Receivable Balances:								
Gross Agents' Balance*	-	-	-	0	0	0	0	0
Reinsurance Recoverables:								
Affiliated	1.000	0.000	1.000	0	0	0	0	0
Less: Funds Held	1.000	0.000	1.000	0	0	0	0	0
Less: LOCs & Trusts**	1.000	0.000	1.000	0	0	0	0	0
Unaffiliated	1.200	0.000	1.200	1,063	1,563	2,095	2,345	1,563
Less: Funds Held	1.150	0.000	1.150	153	225	302	338	0
Less: LOCs & Trusts**	1.150	0.000	1.150	93	135	180	204	0
Net Reinsurance Recoverables				817	1,203	1,613	1,803	1,563
All Other Receivables*	-	-	-	0	0	0	0	0
Company Totals	-	-	-	**817**	**1,203**	**1,613**	**1,803**	**1,563**

	Total Required Capital Amount (Required Capital for Reinsurance Recoverables and Other Receivables + Max(Required Capital for Reinsurance Dependence, Minimum Required Capital for Reinsurance Dependence))			
Receivable Balances:				
Gross Agents' Balance*	4,500	4,500	4,500	4,500
Reinsurance Recoverables:				
Affiliated	354	521	698	782
Less: Funds Held	68	100	134	150
Less: LOCs & Trusts**	93	135	180	204
Unaffiliated	6,878	9,379	12,569	14,069
Less: Funds Held	1,020	1,500	2,312	2,588
Less: LOCs & Trusts**	620	900	1,380	1,564
Net Reinsurance Recoverables	5,431	7,265	9,261	10,345
All Other Receivables*	81	81	81	81
B4 Required Capital	**10,012**	**11,846**	**13,842**	**14,926**

*Reflects a blended capital factor because of multiple categories that that were collapsed for presentation.
**Credit for acceptable letters of credit & trusts. Analysis performed by reinsurer and credit cannot exceed amount of uncollateralized recoverable. Risk charge for acceptable letters of credit and trusts capped a 90% of the risk factor charged to the corresponding recoverables.

B5 Net Loss and Loss-Adjustment Expense Reserves Risk and B6 Net Premiums Written Risk

In order to derive underwriting risk factors for a rating unit, AM Best uses industry probability distributions by Schedule P line of business and by size. From these distributions, industry factors are selected to correspond with the various VaR levels. These industry factors are then adjusted based on a rating unit's profitability or volatility to arrive at its specific risk factors.

The industry reserve and premium probability distributions were calculated by fitting lognormal distributions to data based on insurers' NAIC statutory Schedule P and Insurance Expense Exhibits. Using curve-fitting software and the process outlined in the American Academy of Actuaries' *Property/Casualty RBC Task Force Report on Reserve and Underwriting Risk Factors*, four industry probability distributions were ultimately developed for each of the 21 Schedule P lines of business, reflecting volatility that varies with size. The size thresholds for these distributions were determined after splitting the data for the particular line of business into quartiles to reflect decreasing volatility with increasing size.

Underwriting risk factors for both premiums and reserves can be impacted by various reinsurance products. The treatment of these reinsurance products varies by type of contract. By focusing on the amount of risk transferred, the analyst may increase the underwriting risk charges to reflect the disproportionate amount of risk retained vs. the amount of premium retained.

Finite quota-share contracts with loss ratio caps, corridors, sublimits, and sliding-scale commissions are examples of reinsurance products that transfer away more premium than risk. This transfer results in underwriting risk factors that are higher than the baseline factors but are applied to the reduced net premiums or reserves. This usually generates a reduction to required capital, but not as much as originally anticipated based on the reduction in premium leverage.

Retroactive adverse development covers could benefit loss and loss-adjustment expense reserve capital factors, but the available limits from the contract must be viewed in relation to any reserve deficiencies. If reserve deficiencies exist, the contract limits are applied to the deficiency first, and any remaining limit then can be applied to the capital factors.

Prospective stop-loss contracts create the need for numerous adjustments to the model, depending on where the coverage layers and limits occur relative to historical ultimates. Any loss and loss adjustment expense layers ceded away that occur below the expected ultimate will not reduce capital factors but may reduce indicated deficiencies.

For each of the above types of reinsurance products, adjustments may be made to available capital, deficiency factors, or reinsurance recoverables in addition to the modifications to the underwriting capital factors. The cost of the risk transfer may be used to reduce the credit to risk factors or used to reduce available capital. Furthermore, if there are clauses in the contracts that threaten to cancel or incent to commute the contract and appear likely to be invoked, the contract may be viewed as having no risk transfer in BCAR. Although the adjustments made under these types of contracts numerically

might result in a desirable BCAR score, the lower quality of the rating unit's reinsurance-enhanced capital will be viewed negatively, likely resulting in a lower assessment of its balance sheet strength.

B5 Net Loss and Loss-Adjustment Expense Reserves Risk

To a large extent, AM Best's loss and loss-adjustment expense reserve risk component emphasizes adjusted reserve leverage and stability in loss development as gauges of a rating unit's exposure to reserving errors in its book of business. Consequently, if a rating unit exhibits more volatility in its case incurred loss development, and higher reserves to surplus compared to its peers, then the BCAR model will generate a greater reserve risk capital requirement.

Required capital for reserve risk at each of the confidence levels is generated by applying the corresponding capital factors to a rating unit's adjusted loss and LAE reserves for 21 distinct Schedule P lines of business. To ensure equitable capital treatment among rating units, the BCAR model places considerable weight on a rating unit's adjusted reserves, which emphasizes reserve adequacy and the time value of money embedded in those reserves. A rating unit that historically has under-reserved will be penalized for maintaining lower reported reserves. AM Best's by-line reserve risk factors are based on an integration of the stability of the rating unit's case-incurred loss development pattern in the line of business, the size of the rating unit's reported reserve in the line, and the risk inherent in the line of business. Consequently, a rating unit's required capital for reserve risk is driven by these key factors.

Reserve Equity Adjustments

On a line-by-line basis, a rating unit's reported loss and LAE reserves are adjusted to an economic basis that accounts for AM Best's view of a rating unit's ultimate loss and LAE reserves, and are discounted to their present value recognizing the time value of money. By-line reported loss and LAE reserves are adjusted to an economic basis through two rating-unit-specific modification factors: the reserve deficiency factor and the discount factor.

The reserve deficiency factor reflects AM Best's view of a rating unit's reserve deficiency expressed as a fraction of its original reserve plus 1.0. For example, a rating unit with a 10% reserve deficiency would show a 1.10 reserve deficiency factor in the model, whereas a rating unit with a 20% reserve deficiency would show a 1.20 reserve deficiency factor in the model. The initial determination of reserve deficiency is based on a number of actuarial techniques used within AM Best's proprietary loss reserve model, including paid and case-incurred development. In addition to the reserve model, a diagnostic analysis of Schedule P and a qualitative assessment of the rating unit's operating environment and historical reserve development are used to arrive at AM Best's view of reserve deficiency. Generally, unseasoned rating units with less than five years of loss experience are assigned a minimum deficiency of 10%, while the reserves of seasoned rating units are determined relative to their own historical experience.

A number of issues can affect AM Best's view of a rating unit's reserve position, including the number of reserve adjustments, the size of the adjustments, the lines of business involved, the accident years generating the adverse development, and whether the adjustment was anticipated or unexpected. For

companies of concern, the minimum reserve deficiency applied to the reserves will typically be 10%, but also may be higher.

In addition to assessing the rating unit's core reserves, AM Best may perform a separate analysis of its asbestos and environmental reserves liabilities. Any deficiency in mass-tort reserves is added to the core deficiency. For asbestos and environmental reserves, AM Best uses a survival ratio method, a premium market share method, and a paid-loss-share method to generate an initial assessment of these reserves. The initial analysis may be supplemented by discussions with company management and a current, third-party, ground-up review.

A discount factor, based on the payout pattern of the rating unit's reserves and a 4% annual discount rate, is applied to the estimated ultimate loss and LAE reserves. The resulting deficiency and discount factors are applied to the rating unit's reported by-line loss reserves to derive the rating unit's adjusted reserves. To maintain a consistent treatment of the time value of money, all statutory discounting is treated as reserve deficiency, and credit is given through the discount factor.

Reserve Capital Factors

To determine a rating unit's reserve capital requirement, by-line reserve capital factors are provided at the various confidence levels and are derived from industry risk factors that are adjusted for a rating unit's volatility in its case-incurred loss development for that line.

Exhibit C.6 shows reserve risk capital factors applied to a sample rating unit with average stability.

Exhibit C.6: B5 Reserve Risk Example

	Carried Net Loss and LAE Reserves								
Schedule P Line	%	Statement Amount	Allocated Adjustments	Manual Adjustment	Adjusted Amount (Statement + Allocated + Manual)	Deficiency Factor	Discount Factor	Adjusted Factor (Deficiency Factor * Discount Factor)	Adjusted Reserves (Adjusted Amount * Adjusted Factor)
Homeowners/Farmowners	1.7	6,000	0	0	6,000	1.00	0.942	0.942	5,652
Personal Auto Liability	5.5	20,000	0	0	20,000	1.00	0.941	0.941	18,813
Commercial Auto Liability	5.2	19,000	0	0	19,000	1.05	0.930	0.977	18,556
Workers Compensation	11.0	40,000	0	0	40,000	1.15	0.824	0.947	37,886
Commercial Multiperil	4.1	15,000	0	0	15,000	1.10	0.905	0.995	14,927
Medical Prof Liability - Occurrence	5.0	18,000	0	0	18,000	1.00	0.882	0.882	15,873
Medical Prof Liability - Claims Made	6.1	22,000	0	0	22,000	1.00	0.911	0.911	20,039
Special Liability	3.3	12,000	0	0	12,000	1.00	0.914	0.914	10,969
Other Liability - Occurrence	9.1	33,000	0	0	33,000	1.10	0.856	0.942	31,071
Other Liability - Claims Made	7.7	28,000	0	0	28,000	1.10	0.891	0.980	27,449
Products Liability - Occurrence	3.6	13,000	0	0	13,000	1.10	0.832	0.915	11,900
Products Liability - Claims Made	4.4	16,000	0	0	16,000	1.10	0.875	0.963	15,406
Property	2.5	9,000	0	0	9,000	1.00	0.953	0.953	8,581
Auto Physical Damage	1.7	6,000	0	0	6,000	1.00	0.979	0.979	5,871
Fidelity & Surety / Guaranty	2.2	8,000	0	0	8,000	1.00	0.925	0.925	7,398
Other	1.9	7,000	0	0	7,000	1.00	0.952	0.952	6,663
International	3.0	11,000	0	0	11,000	1.00	0.944	0.944	10,381
Reinsurance A	3.3	12,000	0	0	12,000	1.00	0.923	0.923	11,074
Reinsurance B	8.0	29,000	0	0	29,000	1.10	0.843	0.927	26,882
Reinsurance C	1.7	6,000	0	0	6,000	1.00	0.914	0.914	5,482
Warranty	1.9	7,000	0	0	7,000	1.00	0.976	0.976	6,833
Long Duration Contract UPR	6.9	25,000	0	0	25,000	1.00	1.000	1.000	25,000
Total	**100.0**	**362,000**	**0**	**0**	**362,000**	**1.06**	**0.896**	**0.947**	**342,709**

	Capital Factors				Required Capital Amount (Adjusted Reserves * VaR Capital Factor)			
Schedule P Line	VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 95	VaR 99	VaR 99.5	VaR 99.6
Homeowners/Farmowners	0.242	0.364	0.412	0.426	1,368	2,057	2,329	2,408
Personal Auto Liability	0.169	0.250	0.281	0.291	3,179	4,703	5,286	5,475
Commercial Auto Liability	0.194	0.289	0.326	0.338	3,600	5,363	6,049	6,272
Workers Compensation	0.223	0.334	0.377	0.390	8,448	12,654	14,283	14,775
Commercial Multiperil	0.239	0.360	0.406	0.422	3,568	5,374	6,060	6,299
Medical Prof Liability - Occurrence	0.299	0.456	0.520	0.540	4,746	7,238	8,254	8,571
Medical Prof Liability - Claims Made	0.251	0.381	0.432	0.448	5,030	7,635	8,657	8,978
Special Liability	0.200	0.299	0.338	0.350	2,194	3,280	3,708	3,839
Other Liability - Occurrence	0.283	0.430	0.487	0.507	8,793	13,361	15,132	15,753
Other Liability - Claims Made	0.288	0.438	0.497	0.516	7,905	12,023	13,642	14,164
Products Liability - Occurrence	0.365	0.558	0.634	0.658	4,344	6,640	7,545	7,830
Products Liability - Claims Made	0.289	0.441	0.501	0.519	4,452	6,794	7,718	7,996
Property	0.243	0.366	0.415	0.430	2,085	3,141	3,561	3,690
Auto Physical Damage	0.188	0.279	0.314	0.325	1,104	1,638	1,844	1,908
Fidelity & Surety / Guaranty	0.252	0.381	0.433	0.448	1,864	2,819	3,204	3,315
Other	0.206	0.307	0.346	0.359	1,373	2,046	2,306	2,392
International	0.239	0.359	0.406	0.422	2,481	3,727	4,215	4,381
Reinsurance A	0.256	0.387	0.440	0.456	2,835	4,286	4,873	5,050
Reinsurance B	0.332	0.508	0.577	0.599	8,925	13,656	15,511	16,102
Reinsurance C	0.274	0.417	0.474	0.491	1,502	2,286	2,599	2,692
Warranty	0.188	0.279	0.314	0.326	1,285	1,907	2,146	2,228
Long Duration Contract UPR	0.170	0.250	0.290	0.300	4,250	6,250	7,250	7,500
Total	**0.376**	**0.427**	**0.442**	**0.000**	**85,331**	**128,878**	**146,172**	**151,618**
Multiply by: Diversification Factor					0.78	0.78	0.78	0.78
Multiply by: Growth Factor					1.05	1.05	1.05	1.05
B5 Required Capital					**69,886**	**105,551**	**119,715**	**124,175**

Four industry baseline probability distributions of potential reserve deviations were created for each schedule P line of business based on the size of the reported reserve (**Appendix 3**). The points on the probability distribution that represent the 95th, the 99th, the 99.5th, and the 99.6th percentiles are used as the baseline industry reserve capital factors in the BCAR model. The rating unit's amount of reported net loss and LAE reserve for a line of business determines the industry baseline risk factors that are then adjusted based on the stability of the rating unit's case incurred loss and DCC (defense and cost containment) development for that line of business. AM Best views the variation in a rating

unit's loss and DCC development pattern as a strong indicator of the risk inherent in its reserves and of the rating unit's ability to make accurate projections of ultimate loss and DCC.

Stability factors are used to differentiate the volatility in a specific rating unit's reserves. The stability factors are calibrated around 1.00—ranging from 0.70 to 1.30—and are calculated by line, based on the stability of the rating unit's case incurred loss and DCC development pattern relative to the industry. These stability factors are applied to the baseline industry risk factors and will decrease or increase the industry volatility to reflect the rating unit's stability in that line of business. The measurement used to judge the stability of a line of business is the coefficient of variation for case incurred loss and DCC development factors at each stage of development through 72 months. Rating units with less than eight years of loss experience are penalized for their lack of loss experience and loss development history.

These adjusted capital factors are applied to the rating unit's adjusted loss and LAE reserves to produce required capital charges for reserve risk by line of business at each confidence level. **Appendix 4** shows the typical reserve risk capital factors at each confidence level by size category for a rating unit with average stability.

Diversification Credit

The diversification factor reflects the reduction in overall reserve risk within a well-diversified portfolio of loss and LAE reserves. This diversification factor is calculated using a correlation matrix. The reserve correlation matrix determines the level and direction of reserve deviation in one line of business relative to reserve deviation in another line of business. AM Best created an industry-level reserve correlation matrix using industry-aggregated Schedule P reserve development data (**Exhibit C.7**).

Exhibit C.7: Industry Reserve Development Correlation Matrix

	HO	PAL	CAL	WC	CMP	MPL OCC	MPL CM	SP LIAB	OL OCC	OL CM	PROD OCC	PROD CM	PROP	PHYS	F&S	OTHER	INTL	REIN A	REIN B	REIN C	WTY
HO	1.00	0.61	0.47	0.23	0.60	0.28	0.28	0.62	0.22	0.24	0.27	0.25	0.63	0.47	0.00	0.23	0.00	0.63	0.23	0.24	0.00
PAL	0.61	1.00	0.82	0.72	0.85	0.79	0.78	0.80	0.71	0.74	0.75	0.46	0.76	0.76	0.00	0.00	0.00	0.43	0.76	0.47	0.00
CAL	0.47	0.82	1.00	0.68	0.91	0.87	0.91	0.91	0.67	0.68	0.88	0.25	0.78	0.77	0.00	0.00	0.00	0.48	0.73	0.49	0.00
WC	0.23	0.72	0.68	1.00	0.83	0.82	0.82	0.62	0.88	0.91	0.83	0.47	0.67	0.68	0.46	0.00	0.00	0.07	0.85	0.44	0.00
CMP	0.60	0.85	0.91	0.83	1.00	0.86	0.86	0.86	0.77	0.81	0.84	0.46	0.84	0.75	0.26	0.00	0.00	0.46	0.81	0.47	0.00
MPL OCC	0.28	0.79	0.87	0.82	0.86	1.00	0.95	0.79	0.82	0.81	0.88	0.25	0.79	0.74	0.25	0.00	0.00	0.42	0.82	0.49	0.00
MPL CM	0.28	0.78	0.91	0.82	0.86	0.95	1.00	0.83	0.81	0.76	0.88	0.25	0.79	0.74	0.25	0.00	0.00	0.43	0.82	0.49	0.00
SP LIAB	0.62	0.80	0.91	0.62	0.86	0.79	0.83	1.00	0.51	0.50	0.78	0.25	0.83	0.75	0.00	0.00	0.00	0.65	0.62	0.50	0.00
OL OCC	0.22	0.71	0.67	0.88	0.77	0.82	0.81	0.51	1.00	0.93	0.84	0.26	0.69	0.67	0.46	0.00	0.00	0.00	0.83	0.24	0.00
OL CM	0.24	0.74	0.68	0.91	0.81	0.81	0.76	0.50	0.93	1.00	0.78	0.50	0.65	0.69	0.48	0.00	0.00	0.00	0.84	0.25	0.00
PROD OCC	0.27	0.75	0.88	0.83	0.84	0.88	0.88	0.78	0.84	0.78	1.00	0.24	0.75	0.77	0.24	0.00	0.00	0.25	0.81	0.47	0.00
PROD CM	0.25	0.46	0.25	0.47	0.46	0.25	0.25	0.25	0.26	0.50	0.24	1.00	0.23	0.25	0.24	0.00	0.00	0.00	0.47	0.00	0.00
PROP	0.63	0.76	0.78	0.67	0.84	0.79	0.79	0.83	0.69	0.65	0.75	0.23	1.00	0.84	0.23	0.00	0.00	0.57	0.52	0.26	0.00
PHYS	0.47	0.76	0.77	0.68	0.75	0.74	0.74	0.75	0.67	0.69	0.77	0.25	0.84	1.00	0.21	0.00	0.00	0.27	0.50	0.24	0.00
F&S	0.00	0.00	0.00	0.46	0.26	0.25	0.25	0.00	0.46	0.48	0.24	0.24	0.23	0.21	1.00	0.00	0.00	0.00	0.43	0.00	0.00
OTHER	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
INTL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
REIN A	0.63	0.43	0.48	0.07	0.46	0.42	0.43	0.65	0.00	0.00	0.25	0.00	0.57	0.27	0.00	0.00	0.00	1.00	0.22	0.45	0.00
REIN B	0.23	0.76	0.73	0.85	0.81	0.82	0.82	0.62	0.83	0.84	0.81	0.47	0.52	0.50	0.43	0.00	0.00	0.22	1.00	0.48	0.00
REIN C	0.24	0.47	0.49	0.44	0.47	0.49	0.49	0.50	0.24	0.25	0.47	0.00	0.26	0.24	0.00	0.00	0.00	0.45	0.48	1.00	0.00
WTY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00

The exhibit shows strong correlations among liability lines, which implies only a small amount of diversification benefit for a rating unit with reserves in the liability lines.

Rating units with larger reserve balances for multiple lines of business tend to show correlations similar to the industry-level correlations, but rating units with smaller reserve balances tend to show lower line-by-line correlations than the industry due to their higher volatility in the individual lines. Because of this observation, AM Best adjusts the industry correlation matrix based on the size of the rating unit's total reported net loss and LAE reserve. Rating units with smaller reserve balances will receive more diversification benefit by applying a larger reduction to the industry-reserve correlation matrix than the reduction given to rating units with larger reported reserve balances.

Growth Charge

The reserve growth charge reflects the additional risk that typically comes from growth and is based on the growth in a rating unit's exposures. The growth charge applied to the loss and LAE reserve aggregate required capital reflects the substantial risk a rating unit faces in the claims and reserving areas during a time of significant growth.

A growth charge is applied when a rating unit's growth in exposure is in excess of industry thresholds. Comparisons to the industry thresholds are made on a one-year basis and a three-year annualized basis. The growth charge is based on the comparison that generates the greatest amount in excess of the industry thresholds. Growth in exposures can be based on policy count information as disclosed in the SRQ or based on company-supplied exposure information.

The model initially calculates the rating unit's growth charge based on the growth in unaffiliated gross premiums written. The initial calculation compares the rating unit's most recent year premium growth rate to an industry one-year premium growth threshold and then compares the rating unit's three-year annualized premium growth rate to the industry three-year annualized premium growth threshold. The comparison that generates the greatest amount of premium growth in excess of the corresponding industry threshold generates the growth charge that is used in the analysis. These thresholds are chosen based on rate changes in the industry during those time periods, plus an allowance for moderate growth in exposure.

Exhibit C.8 shows the impact that rate changes can have on calculating the growth factor. In this example, the rating unit's premiums grew at a substantial 25% during the most recent year, generating an initial growth charge of 1.10. However, a subsequent examination of policy counts shows that the exposure really only grew at a rate of 10%, which only generates a growth charge of 1.03. Since policy counts are believed to be a better proxy for exposure growth for this rating unit, the 1.03 growth factor is the growth charge to be used in BCAR for this example.

When rates are declining, the growth factor based on declining premium would be lower than the growth factor based upon exposures. In this situation, the growth factor based upon exposures would once again replace the indicated growth factor based on premiums.

Exhibit C.8: High Premium Growth Example

Calendar Year (CY)	Gross Premiums Written (000)	Count
Third Prior	100,000	1,000
Second Prior	100,000	1,000
First Prior	100,000	1,000
Most Recent	125,000	1,100
One Year Growth Rate:	25.0%	10.0%
Three Year Average Growth Rate:	7.7%	3.2%
Industry Growth Thresholds		
One Year Growth Rate:	11.0%	5.0%
Three Year Average Growth Rate:	14.0%	6.0%
Indicated Growth Factors		
One Year Growth Rate:	1.14	1.05
Three Year Average Growth Rate:	1.00	1.00

Loss Sensitive Business

A rating unit's reserve-risk factor may be adjusted within the casualty lines for loss sensitive business (i.e., retrospectively rated).

Retroactive Reinsurance

Any time-value-of-money gain on retroactive reinsurance is removed from available capital, since the model has already credited the gain to available capital through the reserve-equity adjustment. The reserve equity adjustment represents the embedded value in reserves due to the discounting of those reserves for the time value of money. Failure to remove the gain booked by the insurer would result in a double counting of the embedded equity.

Because BCAR already gives credit for loss-reserve equity, retroactive reinsurance provides little benefit unless it also includes adverse-development protection. There is no true economic gain other than the risk protection awarded for stop-loss protection above the expected ultimate, and that benefit is reflected with a risk factor adjustment. In fact, in some cases where investment yields above those earned by the insurer are guaranteed to the reinsurer, these contracts can be punitive in AM Best's view of capitalization.

Long Duration Contracts

Long duration contracts are defined as contracts having terms in force for more than 13 months and for which the insurer cannot cancel or increase the premium during the life of the contract. Long duration contracts create larger unearned premium reserves than contracts with one-year terms. This creates a larger pricing risk in the unearned premium reserve than anticipated for contracts having terms of one year or less. In order to capture this increased risk, the long duration unearned premiums are included on the loss reserve page. The unearned premiums are included on the loss reserve page instead of the pricing risk page in an effort to reflect diversification from business being written in the

future versus business written in the past. Baseline factors are applied at each confidence level to the net unearned premiums and may be adjusted based on the profitability of the book.

In the case of a contractual liability policy (CLIP), where the insurer guarantees the liabilities of another entity for a fee, the underlying unearned premium that is being guaranteed is added to the loss reserve page instead of the unearned CLIP premium.

Other adjustments to credit risk, unearned premium equity, and written premiums are made in an effort to capture all of the risks associated with writing long-duration contracts. These adjustments vary based on the terms of the contracts and the structure of the business.

B6 Net Premiums Written Risk

Required capital for premiums written risk within the BCAR model is calculated at each confidence level by applying premium capital factors to a rating unit's net premiums written for 21 distinct Schedule P lines of business. Premium risk capital factors are obtained from industry probability distributions of potential underwriting profit and losses that are adjusted for a rating unit's profitability in a particular line of business.

Premium Capital Factors

The determination of premium capital factors for a rating unit begins with the selection of industry baseline capital factors for each line of business based on the size of the net premiums written by the rating unit in that particular line of business. Four industry baseline probability distributions of potential underwriting profit/loss were created for each Schedule P line of business based on the size of the net premiums written (**Appendix 3**). The points on these probability distributions that represent the 95th, 99th, 99.5th, and the 99.6th percentiles are used as the baseline industry premium capital factors in the model. In developing the industry baseline probability distributions for the property lines, AM Best limited the volatility of the historical data in an effort to remove volatility due to catastrophe losses, since catastrophe risk is captured in a separate risk component of the rating unit's required capital B8. AM Best believes the profitability of a rating unit's business and the overall industry pricing levels are good indicators of the level of risk margin expected within a rating unit's future business. Those rating units with better historical profitability are expected to maintain a greater risk margin in the pricing and underwriting of future business and, therefore, require a lower premium capital factor.

The rating unit's premium adequacy is reflected by applying a profitability adjustment factor that ranges from 0.80 to 1.20, based on whether the rating unit is higher or lower than an industry-expected break-even combined ratio for each line of business. An extremely unprofitable book of business would receive an adjustment factor of 1.20 applied to each industry risk factor, thereby increasing capital requirements for an unprofitable rating unit. In contrast, an extremely profitable book of business would receive an adjustment factor of 0.80 applied to each industry risk factor, thereby reducing capital requirements for a profitable rating unit. The measurement used to judge the rating unit's profitability in a line of business is the rating unit's three-year average reported accident year combined ratio in that line of business, using the rating unit's overall underwriting expense ratio.

To account for any changes in current market pricing, the model uses an underwriting cycle adjustment that reflects the impact current pricing has on underwriting risk. The underwriting cycle factor is applied when calculating the premium adequacy adjustment, which can increase or decrease premium capital factors to reflect the current market conditions. This adjustment is necessary because the profitability adjustment uses a three-year history, which is looking at past results, whereas the premium risk is looking forward one year.

Similar to the loss reserve component, AM Best may adjust a rating unit's premium risk factor within the BCAR model to reflect reduced charges for loss-sensitive business, retroactive reinsurance, aggregate stop loss reinsurance, or finite quota-share reinsurance.

Two final adjustments are made to the aggregation of the by-line required premium capital charge. These adjustments include a charge to reflect the additional risk that typically comes from excessive growth and the benefit typically derived from a more diversified book of business.

A rating unit's final premium capital factors for each line of business reflect the industry baseline with the aforementioned adjustment factors applied; **Appendix 5** shows the typical premium risk capital factors at each confidence level by size category for a rating unit with break-even profitability.

Exhibit C.9 shows the premium capital factors applied to a sample rating unit.

Exhibit C.9: B6 Premiums Risk Example

	Net Premiums Written				
Schedule P Line		Statement Amount	Allocated Adjustment	Manual Adjustment	Adjusted Amount (Statement Amount + Allocated Adjustment + Manual Adjustment)
Homeowners/Farmowners	3.4	11,000	0	0	11,000
Personal Auto Liability	3.7	12,000	0	0	12,000
Commercial Auto Liability	4.9	16,000	0	0	16,000
Workers Compensation	6.2	20,000	0	0	20,000
Commercial Multiperil	7.7	25,000	0	0	25,000
Medical Prof Liability - Occurrence	3.4	11,000	0	0	11,000
Medical Prof Liability - Claims Made	4.6	15,000	0	0	15,000
Special Liability	3.7	12,000	0	0	12,000
Other Liability - Occurrence	6.5	21,000	0	0	21,000
Other Liability - Claims Made	6.8	22,000	0	0	22,000
Products Liability - Occurrence	3.1	10,000	0	0	10,000
Products Liability - Claims Made	4.0	13,000	0	0	13,000
Property	5.5	18,000	0	0	18,000
Auto Physical Damage	5.2	17,000	0	0	17,000
Fidelity & Surety / Guaranty	4.3	14,000	0	0	14,000
Other	4.0	13,000	0	0	13,000
International	3.1	10,000	0	0	10,000
Reinsurance A	6.2	20,000	0	0	20,000
Reinsurance B	5.5	18,000	0	0	18,000
Reinsurance C	3.7	12,000	0	0	12,000
Warranty	4.6	15,000	0	0	15,000
Total	**100.0**	**325,000**	**0**	**0**	**325,000**

	Capital Factors				Required Capital Amount (Adjusted Amount * VaR Capital Factor)			
Schedule P Line	VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 95	VaR 99	VaR 99.5	VaR 99.6
Homeowners/Farmowners	0.263	0.398	0.452	0.468	2,893	4,378	4,972	5,148
Personal Auto Liability	0.210	0.314	0.354	0.367	2,520	3,768	4,248	4,404
Commercial Auto Liability	0.235	0.354	0.401	0.415	3,760	5,664	6,416	6,640
Workers Compensation	0.251	0.379	0.429	0.446	5,020	7,580	8,580	8,920
Commercial Multiperil	0.245	0.369	0.419	0.434	6,125	9,225	10,475	10,850
Medical Prof Liability - Occurrence	0.295	0.452	0.513	0.535	3,245	4,972	5,643	5,885
Medical Prof Liability - Claims Made	0.279	0.427	0.486	0.504	4,185	6,405	7,290	7,560
Special Liability	0.242	0.367	0.416	0.432	2,904	4,404	4,992	5,184
Other Liability - Occurrence	0.259	0.394	0.447	0.464	5,439	8,274	9,387	9,744
Other Liability - Claims Made	0.285	0.435	0.494	0.513	6,270	9,570	10,868	11,286
Products Liability - Occurrence	0.321	0.493	0.562	0.583	3,210	4,930	5,620	5,830
Products Liability - Claims Made	0.297	0.455	0.519	0.537	3,861	5,915	6,747	6,981
Property	0.246	0.373	0.423	0.438	4,428	6,714	7,614	7,884
Auto Physical Damage	0.185	0.276	0.310	0.322	3,145	4,692	5,270	5,474
Fidelity & Surety / Guaranty	0.238	0.359	0.406	0.422	3,332	5,026	5,684	5,908
Other	0.229	0.345	0.390	0.405	2,977	4,485	5,070	5,265
International	0.245	0.369	0.419	0.434	2,450	3,690	4,190	4,340
Reinsurance A	0.258	0.391	0.444	0.460	5,160	7,820	8,880	9,200
Reinsurance B	0.274	0.420	0.478	0.495	4,932	7,560	8,604	8,910
Reinsurance C	0.246	0.375	0.427	0.444	2,952	4,500	5,124	5,328
Warranty	0.194	0.289	0.327	0.338	2,910	4,335	4,905	5,070
Total	**0.251**	**0.381**	**0.433**	**0.449**	**81,718**	**123,907**	**140,579**	**145,811**
Multiply by: Diversification Factor					0.72	0.72	0.72	0.72
Multiply by: Growth Factor					1.05	1.05	1.05	1.05
				B6 Required Capital	**61,779**	**93,674**	**106,278**	**110,233**

Diversification Credit

The diversification factor reflects the reduction in overall pricing risk within a well-diversified book of business. This diversification factor is calculated using a correlation matrix. The premium correlation matrix determines the level and direction of underwriting profits and losses in one line of business relative to underwriting profits and losses in another line of business. AM Best created an industry-level premium correlation matrix (**Exhibit C.10**) using industry aggregated schedule P accident year data and the Insurance Expense Exhibit. The exhibit shows strong correlations among commercial liability lines but little or no correlation from the liability lines to the property lines. This

implies only a small amount of diversification benefit for an insurer writing in only the liability lines, but a larger diversification benefit for writing a mix of property and liability lines.

Rating units with larger books of business covering multiple lines of business tend to show correlations similar to the industry-level correlations in underwriting profits and losses; those with smaller books tend to show lower line-by-line correlations than the industry due to their higher volatility in the individual lines. As such, AM Best adjusts the industry-premium correlation matrix based on the size of the rating unit's total reported net premiums written. Rating units with smaller net premiums written receive more diversification benefit as a larger reduction to the industry-premium correlation matrix is applied than that given to rating units with larger books of business.

Exhibit C.10: Industry Premium Correlation Matrix

	HO	PAL	CAL	WC	CMP	MPL OCC	MPL CM	SP LIAB	OL OCC	OL CM	PROD OCC	PROD CM	PROP	PHYS	F&S	OTHER	INTL	REIN A	REIN B	REIN C	WTY
HO	1.00	0.62	0.70	0.67	0.70	0.46	0.46	0.66	0.65	0.67	0.51	0.49	0.67	0.67	0.00	0.50	0.25	0.46	0.49	0.51	0.00
PAL	0.62	1.00	0.71	0.63	0.47	0.29	0.29	0.52	0.51	0.50	0.61	0.65	0.19	0.72	0.00	0.46	0.43	0.00	0.59	0.44	0.00
CAL	0.70	0.71	1.00	0.89	0.87	0.80	0.80	0.71	0.82	0.80	0.85	0.78	0.50	0.82	0.00	0.49	0.26	0.20	0.88	0.77	0.00
WC	0.67	0.63	0.89	1.00	0.84	0.79	0.80	0.71	0.89	0.88	0.84	0.83	0.46	0.79	0.00	0.68	0.27	0.00	0.82	0.69	0.00
CMP	0.70	0.47	0.87	0.84	1.00	0.77	0.78	0.81	0.82	0.79	0.68	0.68	0.66	0.78	0.00	0.50	0.25	0.25	0.77	0.70	0.00
MPL OCC	0.46	0.29	0.80	0.79	0.77	1.00	0.94	0.51	0.85	0.79	0.84	0.68	0.46	0.66	0.00	0.48	0.22	0.00	0.78	0.79	0.00
MPL CM	0.46	0.29	0.80	0.80	0.78	0.94	1.00	0.51	0.88	0.84	0.83	0.76	0.43	0.65	0.00	0.48	0.22	0.00	0.85	0.81	0.00
SP LIAB	0.66	0.52	0.71	0.71	0.81	0.51	0.51	1.00	0.69	0.68	0.47	0.49	0.77	0.76	0.00	0.48	0.44	0.25	0.61	0.66	0.00
OL OCC	0.65	0.51	0.82	0.89	0.82	0.85	0.88	0.69	1.00	0.94	0.85	0.83	0.48	0.77	0.00	0.68	0.46	0.00	0.85	0.79	0.00
OL CM	0.67	0.50	0.80	0.88	0.79	0.79	0.84	0.68	0.94	1.00	0.82	0.78	0.48	0.83	0.00	0.69	0.24	0.00	0.82	0.82	0.00
PROD OCC	0.51	0.61	0.85	0.84	0.68	0.84	0.83	0.47	0.85	0.82	1.00	0.80	0.26	0.77	0.00	0.50	0.25	0.00	0.83	0.77	0.00
PROD CM	0.49	0.65	0.78	0.83	0.68	0.68	0.76	0.49	0.83	0.78	0.80	1.00	0.26	0.67	0.00	0.69	0.47	0.00	0.82	0.67	0.00
PROP	0.67	0.19	0.50	0.46	0.66	0.46	0.43	0.77	0.48	0.48	0.26	0.26	1.00	0.50	0.00	0.24	0.25	0.65	0.28	0.64	0.00
PHYS	0.67	0.72	0.82	0.79	0.78	0.66	0.65	0.76	0.77	0.83	0.77	0.67	0.50	1.00	0.00	0.49	0.26	0.00	0.71	0.80	0.00
F&S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER	0.50	0.46	0.49	0.68	0.50	0.48	0.48	0.48	0.68	0.69	0.50	0.69	0.24	0.49	0.00	1.00	0.25	0.00	0.68	0.49	0.00
INTL	0.25	0.43	0.26	0.27	0.25	0.22	0.22	0.44	0.46	0.24	0.25	0.47	0.25	0.26	0.00	0.25	1.00	0.00	0.26	0.26	0.00
REIN A	0.46	0.00	0.20	0.00	0.25	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	1.00	0.00	0.23	0.00
REIN B	0.49	0.59	0.88	0.82	0.77	0.78	0.85	0.61	0.85	0.82	0.83	0.82	0.28	0.71	0.00	0.68	0.26	0.00	1.00	0.75	0.00
REIN C	0.51	0.44	0.77	0.69	0.70	0.79	0.81	0.66	0.79	0.82	0.77	0.67	0.64	0.80	0.00	0.49	0.26	0.23	0.75	1.00	0.00
WTY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00

Growth Charge

This charge reflects the sizable risk a rating unit faces when bringing in substantial new business based on weaker underwriting and pricing standards or lack of market knowledge. The calculation of the premium growth charge is identical to the calculation of reserve growth charge and is applied directly to the aggregate required capital for premium risk.

In the cases of both the premium and reserve growth charges, adjustments may be made to mitigate higher growth charges based on a rating unit's substantial, historical control of the book of business, as well as the historical profitability and stability of the book of business.

B7 Business Risk

AM Best applies a nominal 1% capital charge to several off-balance-sheet items, including balances associated with non-controlled assets, guarantees for affiliates, contingent liabilities, long-term lease obligations, and interest-rate swaps. This charge represents a starting point for business risk capital charges assessed based on qualitative assessments of off-balance-sheet liabilities that might encumber a rating unit's surplus growth or preservation. **Exhibit C.11** shows the business risk calculation for a sample rating unit.

Exhibit C.11: B7 Business Risk Example

Off Balance Sheet Item	Statement Value	Adjustment	Adjusted Amount (Statement + Adjustment)	Risk Factor %		Required Capital Amount (Adjusted Amount * Risk Factor)
Noncontrolled Assets	50,000	0	50,000	1.0		500
Guarantees For Affiliates	10,000	0	10,000	1.0		100
Contingent Liabilities	12,000	0	12,000	1.0		120
Long Term Lease	1,000	0	1,000	1.0		10
Interest Rate Swaps	30,000	0	30,000	1.0		300
Derivative Liability	2,000	0	2,000	100.0		2,000
Pension Plan Obligations*	50,000	0	50,000	0***		0
Other Post Employment Obligations**	15,000	0	15,000	0****		0
Other	5,000	0	5,000	1.0		50
Totals	**175,000**	**0**	**175,000**	**1.8**	**B7 Required Capital**	**3,080**

*The statement value for Pension Plan Obligations is the projected benefit obligation (PBO) for vested and non-vested employees.
**The statement value for Other Post Employment/Retirement Obligations is the projected benefit obligation (PBO) for vested and non-vested employees.
***A risk factor of zero assumes the pension plan PBO for vested and non-vested employees is fully funded or the company has a liability on its balance sheet for the entire unfunded amount.
****A risk factor of zero assumes the other post-employment/retirement PBO for vested and non-vested employees is fully funded or the company has a liability on its balance sheet for the entire unfunded amount.

After gaining an understanding of the inherent risk relating to off-balance-sheet items, the analyst can modify the capital charge to reflect the appropriate level of risk. For example, to capture the risk associated with credit default swaps, the analyst can assess the credit quality of the underlying portfolio of counterparties using additional information to determine the appropriate capital charge. In such a case, the capital charge may be increased to as high as 100% if recovery is unlikely from the various counterparties.

Pension plans and other post-employment/retirement obligations are charged for the entire unfunded portion of these obligations in the calculation of required capital for business risk. However, this charge can be reduced for any liabilities already shown on the rating unit's balance sheet that are designated for the unfunded portion of these obligations. The charge also may be reduced to reflect the rating unit's planned annual reduction of the remaining unfunded obligations. For those insurers whose unfunded obligations reside at an affiliated company, the rating unit's share of the unfunded obligation is not factored directly into the rating unit's BCAR analysis, but is factored into the balance sheet evaluation.

Derivatives with a liability value on the balance sheet are initially placed on the business risk page with a 100% risk factor. However, the rating unit's entire derivative program is evaluated in the manner discussed earlier within the treatment of derivative assets.

Although many of these items are classified appropriately in the business risk component, adjustments for these items may alternatively be included in the available capital component.

B8 Catastrophe Risk

Occurrence of a Catastrophe

A standardized incorporation of a rating unit's PMLs in the model highlights AM Best's concern that catastrophes are a severe threat to solvency in the industry because of the significant, rapid, and unexpected impact that can occur. While many other exposures can affect solvency, no single exposure

can affect policyholder security more instantaneously than catastrophes. To reflect this concern, AM Best adds the rating unit's modeled catastrophe losses to required capital at each confidence level.

The net PML used for each confidence level is taken from the per-occurrence all-perils combined information provided to AM Best. The pre-tax net PMLs, which are based on worldwide exposures, are net of reinsurance and include reinstatement premiums. The determination of these losses should be provided through the SRQ or through discussions with management. The information filed by rating units within the SRQ can be a key component within the assessment of their capital strength. However, like any other component within BCAR, the PML responses can be adjusted to reflect additional information provided by management. The PML response also can be adjusted if AM Best determines additional conservatism should be taken into consideration based on a review of the catastrophe study.

Discussion regarding output from third party models may be used to assist management and AM Best analysts in assessing a rating unit's catastrophe exposure at the various confidence levels. This assessment should not be limited to the output of a catastrophe model or the average of several models, and it should reflect a full consideration of the rating unit's potential losses.

For those rating units that do not provide modeled PMLs, AM Best may use other information to estimate potential large losses, such as total policy limits; total insured value by state, region, or county; actual historical catastrophe losses; etc.

PMLs are quite often stated on a "return period" basis, such as a 1-in-100-year loss or a 1-in-200-year loss. The BCAR model uses the PML for a particular return period at its corresponding confidence level. **Exhibit C.12** shows the return periods and corresponding confidence levels for each of the PMLs used in the BCAR model.

Exhibit C.12: Return Periods vs. Confidence Levels

Return Period (Years)	Annual Probability (%)	Confidence Level (%)
20	5.0	95.0
100	1.0	99.0
200	0.5	99.5
250	0.4	99.6

Casualty Catastrophes

For casualty writers, an estimate of a catastrophic casualty loss may be used in the analysis of balance sheet strength.

Terrorism

Information on terrorism risk is provided to AM Best in its SRQ. This information is provided both gross and net of reinsurance and the federal backstop. From this information, AM Best calculates a charge to required capital that may be included in the standard BCAR analysis if the terrorism charge is greater than the natural catastrophe PML. The terrorism charge considers the probability of a large-

scale attack, the location of the attack, the number of exposure concentrations, the size of the exposures relative to surplus, data quality, and any available loss mitigation.

D. Available Capital

AM Best may make adjustments to a rating unit's reported capital within the BCAR model to provide a more economic and comparable basis for evaluating capital adequacy. These adjustments even the playing field and compensate for certain economic values not reflected in the statutory financials. Reported capital may be modified for equity adjustments related to unearned premiums, loss reserves, and fixed income assets on an after-tax basis, based on a three-year average effective tax rate that can be modified to reflect the rating unit's projected medium-term tax rate.

The following sections highlight possible adjustments made to available capital in the US P/C BCAR.

Unearned Premium Equity

In the case of unearned premiums, AM Best increases available capital to include an estimated asset for deferred acquisition costs similar to that reflected in GAAP (Generally Accepted Accounting Principles) financials. This equity adjustment enables AM Best to place a growing rating unit, which is penalized for heavy pre-paid acquisition costs, on a comparable basis with a mature rating unit, which has flat or declining acquisition costs.

To the extent that a rating unit's book of business generates a discounted accident year loss and LAE ratio in excess of 100%, AM Best does not recognize any equity in unearned premiums. For rating units with discounted accident year loss and LAE ratios below 100% but still higher than their pre-paid underwriting expense structure will allow, AM Best recognizes only a pro-rata share of the deferred acquisition costs as equity.

A risk charge is applied to the unearned premiums to reflect the pricing risk inherent in the rates charged for business written last year, but still unearned as of the current year-end, and the charge is subtracted from the unearned premium equity. This pricing risk is separate from the risk charged on the premium risk page, which attempts to capture the pricing risk associated with the business that will be written in the upcoming year. The model uses the current year written premium as a proxy for the upcoming year's writings.

Loss Reserve Equity

AM Best adjusts available capital to reflect the net equity embedded within loss reserves. This equity represents the difference between a rating unit's economic reserves—which reflects AM Best's view of ultimate reserves on a discounted basis—and carried reserves. The adjustment, which can be sizable for a casualty insurer, enables AM Best to even the playing field and better differentiate rating units that have historically under-reserved from those that have strong loss reserve positions.

Any reserve equity gain from reinsurance transactions already included in available capital is removed from available capital, since the equity will be awarded through the calculation of loss reserve equity. This is consistent with AM Best's treatment of statutory discounting and with efforts to treat loss

reserve equity consistently. The best example of this is retroactive reinsurance through a loss portfolio transfer in which a rating unit often pays the reinsurer assets equal to the present value of the loss reserve portfolio plus a risk margin and then cedes the full value loss reserves, producing a gain that is embedded in reported capital. However, because of accounting procedures, these loss reserves remain on the primary insurer's books, and the ceded reserves are treated as a negative liability. Since the ceded reserves remain within the balance sheet reserves, some form of adjustment is needed. Otherwise, the time value of money would be credited twice—once within reported capital and once within the calculation of loss reserve equity. In this case, AM Best removes the gain from reported capital, and the equity within these reserves is awarded through the discount factor within the calculation of reserve equity. A reserve risk charge still applies to these reinsured losses. Without additional stop loss, the primary insurer remains exposed to any potential adverse loss development on these reserves.

Fixed-Income Assets

Available capital also is adjusted to reflect a rating unit's fixed-income securities' market value. This allows for a better view of a rating unit's current economic capital position. The pre-tax impact of this adjustment is limited to +10% and -15% of reported capital, and the result is tax-affected. These limits represent the fact that it is unlikely that a rating unit would need to sell all of its fixed-income securities at the current market value and can be reduced for companies without an immediate need for liquidity. Unrealized losses in excess of the limit would require an additional analysis of whether the loss is believed to be temporary or permanent, whether the underlying assets still are performing, and whether there is a near-term cash flow requirement and sufficient cash flow or liquidity to handle this need.

Surplus Notes

All surplus notes are initially deducted from capital and surplus. Assuming that surplus notes exhibit equity-like features, equity credit may be given if such features are present. The maximum equity credit for surplus notes is 90% for third-party (externally held) notes and 95% for notes held by affiliates. Maximum equity credit is allowed for the period up to five years prior to the notes' stated maturity. Equity credit thereafter is reduced 20% per year (on a straight-line basis) until the notes mature. Equity credit is reduced based on the assumption that as surplus notes approach maturity, they become more debt-like.

Stress Test Adjustments

AM Best stresses a rating unit's available capital further as part of its sensitivity analysis. This analysis measures a rating unit's prospective capital needs stemming from a number of off-balance-sheet items, including commitments or guarantees to affiliates, outstanding litigation, excessive catastrophe losses not contained within a rating unit's reinsurance program, and continued operating losses. The stress tests show what the rating unit's BCAR looks like after a stress test scenario occurs. Although these stress-tested BCAR results are not published, they do impact AM Best's view of capitalization.

Rating Units with Natural Catastrophe Exposure

Rating units with a natural catastrophe exposure may be subjected to additional stress tests related to the occurrence of such an event. The stress test assumes an event occurred and the stress test adjusts the rating unit's pre-event BCAR to reflect the impact on its balance sheet using the following adjustments:

1. The reported surplus is reduced by the 1-in-100-year net post-tax PML (including reinstatement premium) from the per-occurrence all-perils combined information.
2. Reinsurance recoverables are increased a minimum of 40% of the difference in the 1-in-100 gross and net pre-tax per-occurrence all-perils combined PMLs (excluding reinstatement premiums). This adjustment can also increase the reinsurance dependence factor. In determining the appropriate risk charge for these recoverables, AM Best assumes the ratings on the reinsurers will remain unchanged as a result of the event.
3. An amount equal to 40% of the 1-in-100 year per-occurrence all-perils combined net pre-tax PML (excluding reinstatement premiums) is added to the loss reserves. This amount may be adjusted based upon the reinsurance structure (i.e., caps, co-participation, etc.).
4. If necessary, the net pre-tax PMLs (including reinstatement premiums) used at each confidence level for the B8 catastrophe risk may be adjusted to reflect any changes in the net PML owing to changes in the reinsurance structure in place after the first event occurs.

Note: The reduction to surplus in Step 1 is on a post-tax basis only if the analyst believes that the company will be able to use the tax benefit. Otherwise, the calculation is on a pre-tax basis.

Rating Units with Terrorism Exposure

Rating units with an exposure to terrorism also may be subjected to a stress test that looks at the sensitivity of the rating unit's capitalization to the occurrence of a terrorism event, assuming the federal backstop is not available. This test carries greater emphasis as the expiration date of the federal backstop approaches.

E. Conclusion

BCAR is important to AM Best's evaluation of both absolute and relative balance sheet strength. Although BCAR is an important measure in the rating process, it is not the sole basis of a rating assignment. BCAR, like other quantitative measures, has limitations and does not necessarily work for all rating units. Consequently, capital adequacy should be viewed within the overall context of the operating and strategic issues surrounding a rating unit. In addition, holding-company considerations will play a key role in evaluating the balance sheet strength of a rating unit. Business profile, operating performance and enterprise risk management are important rating considerations in evaluating a rating unit's long-term financial strength and viability, as well as the quality of the capital that supports the BCAR result.

Understanding BCAR for US Property/Casualty Insurers

AM Best believes that well-managed and highly rated insurers will continue to focus on the fundamentals of building future economic value and financial stability, rather than on managing one, albeit important, component of AM Best's rating evaluation.

Appendix 1: Baseline Bond Risk Charges

VaR 95										
Rating	**1 Year**	**2 Year**	**3 Year**	**4 Year**	**5 Year**	**6 Year**	**7 Year**	**8 Year**	**9 Year**	**10 Year**
aaa	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%	0.03%	0.04%	0.05%	0.05%
aa+	0.00%	0.05%	0.09%	0.14%	0.18%	0.21%	0.24%	0.26%	0.28%	0.30%
aa	0.00%	0.10%	0.18%	0.27%	0.34%	0.41%	0.45%	0.48%	0.52%	0.54%
aa-	0.08%	0.24%	0.37%	0.52%	0.62%	0.71%	0.78%	0.82%	0.86%	0.91%
a+	0.25%	0.53%	0.78%	1.01%	1.19%	1.33%	1.43%	1.48%	1.55%	1.62%
a	0.33%	0.67%	0.99%	1.25%	1.47%	1.63%	1.74%	1.81%	1.89%	1.96%
a-	0.42%	0.86%	1.24%	1.56%	1.82%	2.02%	2.13%	2.21%	2.30%	2.38%
bbb+	0.75%	1.52%	2.16%	2.70%	3.13%	3.46%	3.69%	3.83%	3.99%	4.13%
bbb	0.88%	1.75%	2.47%	3.09%	3.56%	3.93%	4.18%	4.33%	4.48%	4.65%
bbb-	1.16%	2.29%	3.20%	3.95%	4.53%	4.97%	5.25%	5.41%	5.58%	5.78%
bb+	1.89%	3.65%	5.15%	6.43%	7.48%	8.35%	9.03%	9.49%	9.93%	10.34%
bb	2.21%	4.24%	5.94%	7.36%	8.54%	9.49%	10.22%	10.71%	11.18%	11.61%
bb-	4.35%	8.14%	11.12%	13.47%	15.24%	16.55%	17.46%	18.00%	18.46%	18.82%
b+ to b-	6.52%	11.91%	16.32%	19.90%	22.67%	24.85%	26.48%	27.66%	28.45%	28.92%
ccc+ to ccc-	24.38%	37.13%	43.41%	46.09%	46.77%	46.77%	46.77%	46.77%	46.77%	46.77%
cc to c	28.45%	43.32%	50.64%	53.77%	54.56%	54.56%	54.56%	54.56%	54.56%	54.56%
d	32.51%	49.51%	57.87%	61.45%	62.36%	62.36%	62.36%	62.36%	62.36%	62.36%

VaR 99										
Rating	**1 Year**	**2 Year**	**3 Year**	**4 Year**	**5 Year**	**6 Year**	**7 Year**	**8 Year**	**9 Year**	**10 Year**
aaa	0.00%	0.00%	0.04%	0.08%	0.11%	0.14%	0.16%	0.19%	0.21%	0.23%
aa+	0.05%	0.14%	0.24%	0.33%	0.40%	0.47%	0.52%	0.55%	0.59%	0.62%
aa	0.11%	0.27%	0.44%	0.60%	0.71%	0.81%	0.88%	0.92%	0.98%	1.02%
aa-	0.20%	0.45%	0.69%	0.90%	1.05%	1.19%	1.27%	1.33%	1.40%	1.45%
a+	0.39%	0.81%	1.19%	1.50%	1.75%	1.91%	2.05%	2.12%	2.21%	2.29%
a	0.48%	0.99%	1.43%	1.80%	2.08%	2.28%	2.43%	2.51%	2.60%	2.69%
a-	0.60%	1.20%	1.73%	2.16%	2.49%	2.72%	2.88%	2.96%	3.06%	3.17%
bbb+	1.01%	2.02%	2.87%	3.56%	4.09%	4.51%	4.79%	4.93%	5.12%	5.29%
bbb	1.15%	2.29%	3.24%	4.01%	4.57%	5.04%	5.34%	5.49%	5.70%	5.87%
bbb-	1.45%	2.85%	4.01%	4.91%	5.62%	6.10%	6.46%	6.64%	6.83%	7.01%
bb+	2.26%	4.33%	6.15%	7.66%	8.86%	9.81%	10.58%	11.12%	11.54%	11.99%
bb	2.59%	4.95%	6.99%	8.67%	9.98%	11.00%	11.80%	12.36%	12.82%	13.30%
bb-	4.83%	8.99%	12.28%	14.89%	16.73%	18.06%	18.98%	19.47%	19.91%	20.26%
b+ to b-	7.07%	12.91%	17.65%	21.42%	24.28%	26.49%	28.09%	29.28%	29.93%	30.37%
ccc+ to ccc-	25.06%	37.91%	44.06%	46.60%	47.13%	47.13%	47.13%	47.13%	47.13%	47.13%
cc to c	29.24%	44.23%	51.40%	54.36%	54.99%	54.99%	54.99%	54.99%	54.99%	54.99%
d	33.41%	50.55%	58.74%	62.13%	62.84%	62.84%	62.84%	62.84%	62.84%	62.84%

Appendix 1 Continued

VaR 99.5										
Rating	**1 Year**	**2 Year**	**3 Year**	**4 Year**	**5 Year**	**6 Year**	**7 Year**	**8 Year**	**9 Year**	**10 Year**
aaa	0.00%	0.03%	0.09%	0.13%	0.17%	0.21%	0.24%	0.27%	0.30%	0.33%
aa+	0.08%	0.20%	0.32%	0.42%	0.51%	0.57%	0.64%	0.67%	0.72%	0.77%
aa	0.16%	0.37%	0.57%	0.72%	0.85%	0.97%	1.06%	1.09%	1.15%	1.23%
aa-	0.26%	0.57%	0.84%	1.05%	1.22%	1.37%	1.48%	1.52%	1.59%	1.67%
a+	0.46%	0.95%	1.36%	1.68%	1.94%	2.16%	2.31%	2.35%	2.43%	2.55%
a	0.56%	1.14%	1.63%	2.00%	2.30%	2.56%	2.71%	2.76%	2.85%	2.97%
a-	0.68%	1.37%	1.95%	2.38%	2.74%	3.01%	3.19%	3.25%	3.33%	3.47%
bbb+	1.12%	2.25%	3.16%	3.91%	4.47%	4.91%	5.16%	5.32%	5.49%	5.70%
bbb	1.27%	2.53%	3.55%	4.40%	5.00%	5.44%	5.73%	5.92%	6.08%	6.28%
bbb-	1.59%	3.11%	4.33%	5.33%	6.01%	6.56%	6.86%	7.03%	7.20%	7.42%
bb+	2.41%	4.67%	6.53%	8.14%	9.31%	10.37%	11.11%	11.63%	12.12%	12.52%
bb	2.74%	5.30%	7.38%	9.11%	10.46%	11.56%	12.33%	12.88%	13.40%	13.82%
bb-	5.05%	9.36%	12.72%	15.32%	17.28%	18.63%	19.47%	19.99%	20.43%	20.72%
b+ to b-	7.34%	13.33%	18.13%	22.00%	24.90%	27.08%	28.67%	29.77%	30.48%	30.82%
ccc+ to ccc-	25.35%	38.23%	44.37%	46.81%	47.26%	47.26%	47.26%	47.26%	47.26%	47.26%
cc to c	29.57%	44.60%	51.77%	54.61%	55.14%	55.14%	55.14%	55.14%	55.14%	55.14%
d	33.79%	50.97%	59.16%	62.41%	63.02%	63.02%	63.02%	63.02%	63.02%	63.02%

VaR 99.6										
Rating	**1 Year**	**2 Year**	**3 Year**	**4 Year**	**5 Year**	**6 Year**	**7 Year**	**8 Year**	**9 Year**	**10 Year**
aaa	0.00%	0.05%	0.10%	0.14%	0.19%	0.23%	0.27%	0.30%	0.32%	0.38%
aa+	0.09%	0.21%	0.35%	0.45%	0.54%	0.61%	0.68%	0.71%	0.77%	0.82%
aa	0.18%	0.40%	0.61%	0.77%	0.90%	1.00%	1.10%	1.15%	1.21%	1.27%
aa-	0.28%	0.59%	0.87%	1.11%	1.29%	1.40%	1.53%	1.58%	1.64%	1.72%
a+	0.48%	0.99%	1.42%	1.77%	2.02%	2.21%	2.37%	2.42%	2.50%	2.61%
a	0.58%	1.18%	1.70%	2.09%	2.39%	2.60%	2.78%	2.83%	2.93%	3.03%
a-	0.71%	1.42%	2.01%	2.48%	2.85%	3.07%	3.25%	3.32%	3.41%	3.52%
bbb+	1.17%	2.31%	3.26%	4.00%	4.57%	5.00%	5.31%	5.42%	5.60%	5.79%
bbb	1.32%	2.61%	3.64%	4.48%	5.10%	5.58%	5.91%	6.02%	6.19%	6.39%
bbb-	1.62%	3.19%	4.42%	5.40%	6.13%	6.67%	7.02%	7.17%	7.33%	7.54%
bb+	2.47%	4.76%	6.67%	8.26%	9.51%	10.53%	11.23%	11.78%	12.24%	12.67%
bb	2.82%	5.40%	7.52%	9.28%	10.65%	11.73%	12.50%	13.02%	13.51%	13.96%
bb-	5.10%	9.48%	12.89%	15.50%	17.51%	18.82%	19.66%	20.16%	20.56%	20.89%
b+ to b-	7.43%	13.44%	18.29%	22.13%	25.09%	27.25%	28.79%	29.93%	30.61%	30.95%
ccc+ to ccc-	25.46%	38.31%	44.42%	46.84%	47.30%	47.30%	47.30%	47.30%	47.30%	47.30%
cc to c	29.70%	44.69%	51.82%	54.64%	55.18%	55.18%	55.18%	55.18%	55.18%	55.18%
d	33.94%	51.08%	59.23%	62.45%	63.06%	63.06%	63.06%	63.06%	63.06%	63.06%

Appendix 2: Credit Risk Factors

Reinsurance Recoverables Credit Risk Factors - VaR 95											
Best's ICR of Reinsurer	**FSR**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
aaa	A++	0.3%	0.4%	0.5%	0.6%	0.6%	0.7%	0.8%	0.9%	1.0%	1.0%
aa+	A++	0.5%	0.6%	0.7%	0.8%	0.8%	1.0%	1.1%	1.2%	1.3%	1.4%
aa	A+	0.7%	0.8%	0.9%	1.0%	1.1%	1.2%	1.4%	1.5%	1.6%	1.7%
aa-	A+	1.0%	1.1%	1.3%	1.4%	1.5%	1.6%	1.7%	1.9%	2.0%	2.1%
a+	A	1.2%	1.5%	1.7%	1.9%	2.1%	2.3%	2.4%	2.5%	2.7%	2.8%
a	A	1.5%	1.8%	2.0%	2.3%	2.5%	2.7%	2.9%	3.1%	3.3%	3.4%
a-	A-	2.0%	2.4%	2.7%	3.1%	3.4%	3.7%	4.0%	4.3%	4.6%	4.8%
bbb+	B++	2.5%	3.2%	3.9%	4.5%	5.0%	5.6%	6.2%	6.7%	7.2%	7.6%
bbb	B++	2.9%	4.0%	5.0%	5.9%	6.7%	7.6%	8.4%	9.1%	9.7%	10.3%
bbb-	B+	3.9%	5.4%	6.8%	8.1%	9.2%	10.2%	11.0%	11.8%	12.5%	13.1%
bb+	B	5.9%	7.5%	9.1%	10.5%	11.7%	12.9%	14.0%	14.9%	15.8%	16.5%
bb	B	8.8%	10.6%	12.2%	13.7%	15.1%	16.3%	17.4%	18.3%	19.2%	20.0%
bb-	B-	11.8%	13.7%	15.4%	17.0%	18.4%	19.3%	20.2%	20.9%	21.5%	22.1%
b+	C++	14.7%	16.3%	17.7%	19.0%	20.1%	21.0%	21.7%	22.4%	22.9%	23.4%
b	C++	17.7%	18.9%	20.0%	20.9%	21.8%	22.6%	23.3%	23.9%	24.4%	24.8%
b-	C+	19.6%	20.7%	21.8%	22.7%	23.5%	24.2%	24.8%	25.3%	25.8%	26.2%
ccc+ and Lower		49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%
Not Rated by A.M. Best		49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%

*Includes reinsurance recoverables on paid loss & LAE, known case loss & LAE reserves, IBNR loss & LAE reserves, and unearned premium

Reinsurance Recoverables Credit Risk Factors - VaR 99											
Best's ICR of Reinsurer	**FSR**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
aaa	A++	1.2%	1.4%	1.5%	1.6%	1.7%	1.8%	1.9%	1.9%	2.0%	2.1%
aa+	A++	1.5%	1.7%	1.8%	2.0%	2.1%	2.3%	2.4%	2.5%	2.7%	2.8%
aa	A+	1.7%	1.9%	2.2%	2.3%	2.5%	2.7%	2.9%	3.1%	3.3%	3.4%
aa-	A+	2.0%	2.2%	2.5%	2.7%	2.9%	3.2%	3.5%	3.7%	3.9%	4.1%
a+	A	2.2%	2.5%	2.8%	3.1%	3.4%	3.7%	4.0%	4.3%	4.6%	4.8%
a	A	2.5%	3.0%	3.4%	3.8%	4.2%	4.5%	4.8%	5.1%	5.3%	5.5%
a-	A-	2.9%	3.5%	4.1%	4.6%	5.0%	5.5%	5.9%	6.3%	6.6%	6.9%
bbb+	B++	3.9%	4.7%	5.4%	6.1%	6.7%	7.4%	8.1%	8.6%	9.2%	9.7%
bbb	B++	4.9%	5.9%	6.8%	7.6%	8.4%	9.4%	10.2%	11.0%	11.8%	12.4%
bbb-	B+	5.9%	7.3%	8.6%	9.8%	10.9%	11.9%	12.9%	13.7%	14.5%	15.2%
bb+	B	8.8%	10.4%	11.8%	13.1%	14.3%	15.3%	16.3%	17.1%	17.9%	18.6%
bb	B	11.8%	13.4%	15.0%	16.3%	17.6%	18.7%	19.7%	20.6%	21.4%	22.1%
bb-	B-	14.7%	16.5%	18.1%	19.6%	21.0%	21.8%	22.5%	23.1%	23.6%	24.1%
b+	C++	17.7%	19.1%	20.4%	21.6%	22.6%	23.4%	24.0%	24.6%	25.1%	25.5%
b	C++	20.6%	21.7%	22.7%	23.5%	24.3%	25.0%	25.6%	26.1%	26.5%	26.9%
b-	C+	22.6%	23.6%	24.5%	25.3%	26.0%	26.6%	27.1%	27.6%	27.9%	28.3%
ccc+ and Lower		49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%
Not Rated by A.M. Best		49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%

*Includes reinsurance recoverables on paid loss & LAE, known case loss & LAE reserves, IBNR loss & LAE reserves, and unearned premium

Appendix 2 Continued

Reinsurance Recoverables Credit Risk Factors - VaR 99.5											
Best's ICR of Reinsurer	FSR	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
aaa	A++	1.7%	1.9%	2.0%	2.2%	2.3%	2.4%	2.5%	2.6%	2.7%	2.8%
aa+	A++	2.0%	2.2%	2.4%	2.6%	2.7%	2.9%	3.1%	3.2%	3.3%	3.4%
aa	A+	2.2%	2.5%	2.7%	3.0%	3.1%	3.4%	3.6%	3.8%	4.0%	4.1%
aa-	A+	2.5%	2.8%	3.2%	3.5%	3.8%	4.0%	4.3%	4.5%	4.7%	4.8%
a+	A	2.9%	3.4%	3.9%	4.3%	4.6%	4.9%	5.2%	5.4%	5.7%	5.9%
a	A	3.4%	4.0%	4.5%	5.0%	5.5%	5.8%	6.1%	6.4%	6.7%	6.9%
a-	A-	3.9%	4.7%	5.4%	6.1%	6.7%	7.1%	7.4%	7.8%	8.0%	8.3%
bbb+	B++	4.9%	5.9%	6.8%	7.6%	8.4%	9.0%	9.6%	10.1%	10.6%	11.0%
bbb	B++	5.9%	7.1%	8.2%	9.2%	10.1%	11.0%	11.8%	12.5%	13.2%	13.8%
bbb-	B+	7.8%	9.2%	10.4%	11.6%	12.6%	13.5%	14.4%	15.2%	15.9%	16.5%
bb+	B	10.8%	12.3%	13.6%	14.8%	15.9%	16.9%	17.8%	18.6%	19.4%	20.0%
bb	B	13.7%	15.3%	16.8%	18.1%	19.3%	20.3%	21.2%	22.1%	22.8%	23.4%
bb-	B-	16.7%	18.4%	20.0%	21.4%	22.6%	23.4%	24.0%	24.6%	25.1%	25.5%
b+	C++	19.6%	21.0%	22.2%	23.3%	24.3%	25.0%	25.6%	26.1%	26.5%	26.9%
b	C++	22.6%	23.6%	24.5%	25.3%	26.0%	26.6%	27.1%	27.6%	27.9%	28.3%
b-	C+	24.5%	25.5%	26.3%	27.0%	27.7%	28.2%	28.7%	29.1%	29.4%	29.6%
ccc+ and Lower		49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%
Not Rated by A.M. Best		49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%

*Includes reinsurance recoverables on paid loss & LAE, known case loss & LAE reserves, IBNR loss & LAE reserves, and unearned premium

Reinsurance Recoverables Credit Risk Factors - VaR 99.6											
Best's ICR of Reinsurer	FSR	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
aaa	A++	1.8%	2.0%	2.2%	2.3%	2.5%	2.6%	2.7%	2.8%	2.9%	2.9%
aa+	A++	2.1%	2.3%	2.5%	2.7%	2.9%	3.1%	3.2%	3.4%	3.5%	3.6%
aa	A+	2.4%	2.7%	2.9%	3.1%	3.3%	3.6%	3.8%	4.0%	4.2%	4.3%
aa-	A+	2.7%	3.1%	3.4%	3.7%	4.0%	4.2%	4.5%	4.7%	4.8%	5.0%
a+	A	3.2%	3.7%	4.1%	4.5%	4.8%	5.1%	5.4%	5.7%	5.9%	6.1%
a	A	3.7%	4.3%	4.8%	5.3%	5.8%	6.1%	6.5%	6.7%	7.0%	7.2%
a-	A-	4.3%	5.1%	5.8%	6.5%	7.1%	7.5%	7.8%	8.1%	8.4%	8.6%
bbb+	B++	5.3%	6.3%	7.2%	8.0%	8.8%	9.4%	10.0%	10.5%	11.0%	11.4%
bbb	B++	6.4%	7.5%	8.6%	9.6%	10.5%	11.4%	12.2%	12.9%	13.5%	14.1%
bbb-	B+	8.3%	9.7%	10.9%	12.0%	13.0%	13.9%	14.8%	15.6%	16.3%	16.9%
bb+	B	11.3%	12.7%	14.1%	15.3%	16.3%	17.3%	18.2%	19.0%	19.7%	20.3%
bb	B	14.2%	15.8%	17.2%	18.5%	19.7%	20.7%	21.6%	22.4%	23.1%	23.8%
bb-	B-	17.2%	18.9%	20.4%	21.8%	23.1%	23.8%	24.4%	25.0%	25.4%	25.8%
b+	C++	20.1%	21.5%	22.7%	23.8%	24.7%	25.4%	26.0%	26.5%	26.9%	27.2%
b	C++	23.0%	24.0%	24.9%	25.7%	26.4%	27.0%	27.5%	27.9%	28.3%	28.6%
b-	C+	25.0%	25.9%	26.7%	27.5%	28.1%	28.6%	29.1%	29.4%	29.7%	30.0%
ccc+ and Lower		49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%
Not Rated by A.M. Best		49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%

*Includes reinsurance recoverables on paid loss & LAE, known case loss & LAE reserves, IBNR loss & LAE reserves, and unearned premium

Appendix 3: Size Thresholds by Line of Business

Net Loss and LAE Reserve Risk

	Size Category			
Schedule P Line	**Very Small**	**Small**	**Medium**	**Large**
Homeowners/Farmowners	Under $2M	$2M to $5M	$5M to $15M	Over $15M
Personal Auto Liability	Under $5M	$5M to $15M	$15M to $50M	Over $50M
Commercial Auto Liability	Under $3M	$3M to $7M	$7M to $20M	Over $20M
Workers Compensation	Under $5M	$5M to $20M	$20M to $75M	Over $75M
Commercial Multiperil	Under $4M	$4M to $10M	$10M to $20M	Over $20M
Medical Prof Liability - Occurrence	Under $3M	$3M to $7M	$7M to $30M	Over $30M
Medical Prof Liability - Claims Made	Under $4M	$4M to $15M	$15M to $50M	Over $50M
Special Liability	Under $2M	$2M to $10M	$10M to $60M	Over $60M
Other Liability - Occurrence	Under $4M	$4M to $12M	$12M to $40M	Over $40M
Other Liability - Claims Made	Under $3M	$3M to $8M	$8M to $30M	Over $30M
Products Liability - Occurrence	Under $3M	$3M to $7M	$7M to $20M	Over $20M
Products Liability - Claims Made	Under $3M	$3M to $7M	$7M to $20M	Over $20M
Property	Under $2M	$2M to $5M	$5M to $17M	Over $17M
Auto Physical Damage	Under $2M	$2M to $5M	$5M to $17M	Over $17M
Fidelity & Surety / Guaranty	Under $2M	$2M to $5M	$5M to $17M	Over $17M
Other	Under $2M	$2M to $5M	$5M to $17M	Over $17M
International	Under $4M	$4M to $10M	$10M to $20M	Over $20M
Reinsurance A	Under $2M	$2M to $10M	$10M to $25M	Over $25M
Reinsurance B	Under $5M	$5M to $20M	$20M to $100M	Over $100M
Reinsurance C	Under $2M	$2M to $5M	$5M to $15M	Over $15M
Warranty	Under $2M	$2M to $5M	$5M to $17M	Over $17M

Net Premium Written Risk

	Size Category			
Schedule P Line	**Very Small**	**Small**	**Medium**	**Large**
Homeowners/Farmowners	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Personal Auto Liability	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Commercial Auto Liability	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Workers Compensation	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Commercial Multiperil	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Medical Prof Liability - Occurrence	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Medical Prof Liability - Claims Made	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Special Liability	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Other Liability - Occurrence	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Other Liability - Claims Made	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Products Liability - Occurrence	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Products Liability - Claims Made	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Property	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Auto Physical Damage	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Fidelity & Surety / Guaranty	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Other	Under $2M	$2M to $10M	$10M to $30M	Over $30M
International	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Reinsurance A	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Reinsurance B	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Reinsurance C	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Warranty	Under $2M	$2M to $10M	$10M to $30M	Over $30M

Appendix 4: Baseline Reserve Risk Factors

Typical Reserve Risk Capital Factors

Size Category: Very Small

	VaR Confidence Level			
	95%	99%	99.5%	99.6%
HO	0.320	0.492	0.560	0.581
PAL	0.202	0.302	0.341	0.352
CAL	0.242	0.365	0.413	0.429
WC	0.292	0.444	0.504	0.522
CMP	0.342	0.526	0.599	0.624
MPL OCC	0.383	0.595	0.681	0.709
MPL CM	0.348	0.539	0.617	0.641
SP LIAB	0.240	0.362	0.410	0.426
OL OCC	0.379	0.587	0.671	0.699
OL CM	0.364	0.563	0.642	0.669
PROD OCC	0.460	0.717	0.819	0.852
PROD CM	0.359	0.557	0.637	0.661
PROP	0.322	0.495	0.565	0.586
PHYS	0.226	0.339	0.383	0.396
F&S	0.312	0.479	0.546	0.566
OTHER	0.283	0.430	0.488	0.507
INTL	0.342	0.525	0.599	0.623
REIN A	0.344	0.531	0.607	0.630
REIN B	0.423	0.660	0.755	0.786
REIN C	0.332	0.512	0.585	0.606
WTY	0.226	0.339	0.383	0.397

Size Category: Small

	VaR Confidence Level			
	95%	99%	99.5%	99.6%
HO	0.281	0.427	0.485	0.502
PAL	0.184	0.274	0.309	0.319
CAL	0.215	0.321	0.363	0.377
WC	0.244	0.366	0.414	0.429
CMP	0.288	0.439	0.498	0.517
MPL OCC	0.329	0.506	0.578	0.601
MPL CM	0.294	0.450	0.513	0.532
SP LIAB	0.225	0.338	0.382	0.397
OL OCC	0.310	0.474	0.539	0.560
OL CM	0.321	0.492	0.559	0.582
PROD OCC	0.414	0.639	0.728	0.757
PROD CM	0.327	0.503	0.573	0.594
PROP	0.280	0.425	0.484	0.502
PHYS	0.205	0.306	0.345	0.357
F&S	0.270	0.410	0.466	0.483
OTHER	0.242	0.364	0.412	0.427
INTL	0.288	0.438	0.497	0.517
REIN A	0.299	0.457	0.521	0.541
REIN B	0.381	0.589	0.672	0.698
REIN C	0.303	0.464	0.529	0.547
WTY	0.205	0.306	0.345	0.358

Size Category: Medium

	VaR Confidence Level			
	95%	99%	99.5%	99.6%
HO	0.242	0.364	0.412	0.426
PAL	0.169	0.250	0.281	0.291
CAL	0.194	0.289	0.326	0.338
WC	0.223	0.334	0.377	0.390
CMP	0.239	0.360	0.406	0.422
MPL OCC	0.299	0.456	0.520	0.540
MPL CM	0.251	0.381	0.432	0.448
SP LIAB	0.200	0.299	0.338	0.350
OL OCC	0.283	0.430	0.487	0.507
OL CM	0.288	0.438	0.497	0.516
PROD OCC	0.365	0.558	0.634	0.658
PROD CM	0.289	0.441	0.501	0.519
PROP	0.243	0.366	0.415	0.430
PHYS	0.188	0.279	0.314	0.325
F&S	0.252	0.381	0.433	0.448
OTHER	0.206	0.307	0.346	0.359
INTL	0.239	0.359	0.406	0.422
REIN A	0.256	0.387	0.440	0.456
REIN B	0.332	0.508	0.577	0.599
REIN C	0.274	0.417	0.474	0.491
WTY	0.188	0.279	0.314	0.326

Size Category: Large

	VaR Confidence Level			
	95%	99%	99.5%	99.6%
HO	0.205	0.306	0.346	0.357
PAL	0.151	0.223	0.250	0.259
CAL	0.178	0.264	0.297	0.308
WC	0.207	0.308	0.347	0.359
CMP	0.209	0.312	0.352	0.365
MPL OCC	0.267	0.406	0.461	0.478
MPL CM	0.211	0.318	0.360	0.373
SP LIAB	0.186	0.277	0.312	0.323
OL OCC	0.279	0.422	0.478	0.497
OL CM	0.262	0.396	0.448	0.465
PROD OCC	0.325	0.493	0.559	0.580
PROD CM	0.252	0.381	0.432	0.448
PROP	0.207	0.308	0.348	0.361
PHYS	0.170	0.252	0.283	0.292
F&S	0.234	0.353	0.399	0.413
OTHER	0.188	0.280	0.315	0.326
INTL	0.209	0.312	0.352	0.365
REIN A	0.218	0.326	0.369	0.382
REIN B	0.298	0.452	0.512	0.531
REIN C	0.246	0.372	0.422	0.436
WTY	0.170	0.252	0.283	0.293

Appendix 5: Baseline Premium Risk Factors

Typical Premium Risk Capital Factors

Size Category: Very Small

	VaR Confidence Level			
	95%	99%	99.5%	99.6%
HO	0.323	0.496	0.566	0.587
PAL	0.267	0.404	0.459	0.476
CAL	0.275	0.418	0.476	0.493
WC	0.300	0.459	0.522	0.543
CMP	0.314	0.481	0.549	0.570
MPL OCC	0.349	0.543	0.619	0.646
MPL CM	0.321	0.496	0.566	0.587
SP LIAB	0.289	0.445	0.506	0.527
OL OCC	0.330	0.511	0.583	0.606
OL CM	0.342	0.530	0.604	0.628
PROD OCC	0.357	0.554	0.632	0.658
PROD CM	0.328	0.508	0.580	0.602
PROP	0.303	0.466	0.530	0.551
PHYS	0.239	0.361	0.409	0.425
F&S	0.303	0.466	0.530	0.552
OTHER	0.303	0.466	0.531	0.552
INTL	0.314	0.481	0.549	0.569
REIN A	0.326	0.503	0.572	0.595
REIN B	0.326	0.505	0.577	0.598
REIN C	0.321	0.496	0.567	0.590
WTY	0.248	0.376	0.427	0.442

Size Category: Small

	VaR Confidence Level			
	95%	99%	99.5%	99.6%
HO	0.281	0.427	0.485	0.503
PAL	0.239	0.359	0.406	0.421
CAL	0.248	0.374	0.425	0.440
WC	0.270	0.409	0.464	0.483
CMP	0.267	0.406	0.461	0.478
MPL OCC	0.324	0.500	0.569	0.594
MPL CM	0.307	0.471	0.537	0.557
SP LIAB	0.266	0.405	0.460	0.479
OL OCC	0.286	0.438	0.498	0.518
OL CM	0.311	0.477	0.543	0.564
PROD OCC	0.335	0.517	0.589	0.612
PROD CM	0.315	0.485	0.553	0.573
PROP	0.266	0.404	0.459	0.476
PHYS	0.212	0.318	0.359	0.374
F&S	0.266	0.404	0.459	0.477
OTHER	0.257	0.390	0.443	0.459
INTL	0.267	0.406	0.461	0.478
REIN A	0.282	0.431	0.489	0.507
REIN B	0.300	0.461	0.525	0.544
REIN C	0.261	0.400	0.455	0.474
WTY	0.221	0.332	0.376	0.389

Size Category: Medium

	VaR Confidence Level			
	95%	99%	99.5%	99.6%
HO	0.263	0.398	0.452	0.468
PAL	0.210	0.314	0.354	0.367
CAL	0.235	0.354	0.401	0.415
WC	0.251	0.379	0.429	0.446
CMP	0.245	0.369	0.419	0.434
MPL OCC	0.295	0.452	0.513	0.535
MPL CM	0.279	0.427	0.486	0.504
SP LIAB	0.242	0.367	0.416	0.432
OL OCC	0.259	0.394	0.447	0.464
OL CM	0.285	0.435	0.494	0.513
PROD OCC	0.321	0.493	0.562	0.583
PROD CM	0.297	0.455	0.519	0.537
PROP	0.246	0.373	0.423	0.438
PHYS	0.185	0.276	0.310	0.322
F&S	0.238	0.359	0.406	0.422
OTHER	0.229	0.345	0.390	0.405
INTL	0.245	0.369	0.419	0.434
REIN A	0.258	0.391	0.444	0.460
REIN B	0.274	0.420	0.478	0.495
REIN C	0.246	0.375	0.427	0.444
WTY	0.194	0.289	0.327	0.338

Size Category: Large

	VaR Confidence Level			
	95%	99%	99.5%	99.6%
HO	0.257	0.388	0.440	0.456
PAL	0.189	0.282	0.318	0.329
CAL	0.214	0.320	0.362	0.375
WC	0.232	0.349	0.394	0.410
CMP	0.235	0.353	0.400	0.414
MPL OCC	0.273	0.416	0.472	0.491
MPL CM	0.260	0.396	0.450	0.466
SP LIAB	0.221	0.333	0.377	0.392
OL OCC	0.242	0.366	0.414	0.430
OL CM	0.247	0.375	0.424	0.440
PROD OCC	0.293	0.448	0.509	0.529
PROD CM	0.279	0.426	0.485	0.502
PROP	0.237	0.358	0.406	0.420
PHYS	0.168	0.249	0.280	0.290
F&S	0.220	0.330	0.373	0.387
OTHER	0.211	0.316	0.357	0.371
INTL	0.234	0.353	0.400	0.414
REIN A	0.242	0.367	0.416	0.431
REIN B	0.258	0.393	0.447	0.462
REIN C	0.231	0.351	0.399	0.414
WTY	0.176	0.262	0.296	0.305

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