

ReMetrics—Financial Consulting



Capital Allocation via a Rating Agency Capital Model

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Introduction

Capital allocation has been the subject of many articles and abstracts discussing various approaches to allocating capital among lines of business or operating divisions. Many companies struggle with a basis of ascertaining how much capital is needed to support a specific line of business, operating division, etc. Consider some of the following general questions in order to help gauge the importance of capital allocation to individual circumstances:

- 1) What lines of business (on a historical and prospective basis) have the most impact on capital needs to support the financial strength rating?
- 2) Where can growth occur that will either be most efficient on a capital requirement basis or the most profitable on a risk-adjusted basis?
- 3) Do traditional measures of performance, e.g., combined ratio, provide the best perspective to adequately measure profitability?

These are only some of the fundamental questions that every insurance company wants to answer to operate successfully in a competitive environment. Offering practical methodology, this paper provides a basis for companies to answer important questions, like those noted above, and understand how business strategies will influence their financial rating.

The scope of this paper discusses capital allocation for property & casualty (P&C) insurance companies from a Best's Capital Adequacy Ratio (BCAR) model approach. A.M. Best is recognized as a leading insurance rating agency in the United States, assigning financial strength ratings to over 2,000 companies with surplus ranging from \$1 million to more than \$60 billion. A.M. Best's rating criteria are based upon a quantitative and qualitative analysis of a company's balance sheet strength, operating performance, and business profile. One of the key quantitative measures employed by A.M. Best is the BCAR, which is derived from a proprietary capital adequacy model that evaluates balance sheet strength. As such, BCAR is an important metric for all rated companies and thus has cost of capital implications. This concept and approach can also be applied to the capital models utilized by other rating agencies such as Standard & Poor's (S&P), Moody's, or Fitch Ratings.

In conjunction with this paper, Benfield developed **OptiCap™**, a proprietary capital allocation model designed to optimize capital by line of business within rating agency guidelines, which is largely based upon BCAR. The assumptions regarding the allocation algorithm are discussed within.

Why Is Capital Allocation Important?

Given the lack of standardization and potential complexity underlying capital allocation, a practical question is “Why is capital allocation important?” By itself, capital allocation does not necessarily lead to better decision making. Further, there are industry professionals that disagree with the general concept of capital allocation, as all capital of the insurance entity is available to pay the claims of any line of business or policy. To counter that argument, capital allocation is not necessarily the end result, but more so a stepping stone in understanding and determining rates of return on a risk-adjusted basis. To that extent, many view the capital allocation process more closely to allocating the cost of capital.¹

Capital allocation entails a process that leads management to examine results relative to exposure and identify areas of mismatch between return expectations and capital at risk. As a result, capital allocation can provide management with a framework to measure performance relative to the underlying risk of the business. Risk-adjusted returns derived from capital allocation can be used as a basis for assessing:

- Profitability—measure return on capital by line of business/division; may provide implied rate adequacy
- Risk Measure—provide baseline of understanding risk by line of business/division; assess the impact of a change in the perception of risk (e.g., from a rating perspective)
- Risk Mitigation—evaluate the effectiveness of risk mitigation strategies such as diversification, use of reinsurance and hedging strategies on capital requirements
- Strategic Decisions—help determine the amount of business and product type to target or avoid
- Compensation—incorporate for incentive compensation considerations relative to risk

As enterprise risk management (ERM) has expanded and gained significant momentum in recent years, so has the consideration for economic capital models to assist companies with capital allocation needs. Similar to ERM, the rating agencies have been vocal about the benefits of capital allocation. A.M. Best has indicated that allocating capital by line of business can lead to “ultimately resulting in optimal capital utilization and maximizing risk-adjusted returns within each product line.”² Likewise, S&P stated that by allocating capital by line of business, “a company can develop programs that will support the optimization of risk-adjusted return” which is also a key element to achieve a “Strong” ERM rating.³ Both rating agencies effectively indicate that they view capital allocation as an important step to optimize shareholder value. As such, the increased emphasis and importance of capital allocation within the industry is also connected to rating agency considerations.

¹ Patrik, G., Bernegger, S., & Rüegg, M. B. (1999). The Use of Risk Adjusted Capital to Support Business Decision-Making. *Casualty Actuarial Society Forum*, Spring, Reinsurance Call Papers. www.casact.org/pubs/forum/99spforum/99spf243.pdf.

² A.M. Best (2008) *Best's Rating Methodology: Risk Management and the Rating Process for Insurance Companies*, Oldwick, NJ (25 January 2008). www.ambest.com/ratings/methodology/riskmanagement.pdf.

³ Standard & Poor's. (2005). *Insurance Criteria: Evaluating the Enterprise Risk Management Practices of Insurance Companies*, Standard & Poor's, McGraw Hill, USA.

The process of measuring and monitoring risk and return is a sound risk management practice. While some companies may not need a comprehensive economic capital model, understanding the amount of capital each line of business or division requires is still valuable information. Further, the perception of risk in the industry is not stagnant, so the process of allocating capital can help measure the impact of a change in risk on a company's or line of business's capital needs.

In the end, the importance of capital allocation will vary by company and depend upon the level and complexity of risk. Likewise, if capital allocation is done in the backroom to simply generate a report that is not given much significance, then the benefits from capital allocation cannot be fully achieved. For capital allocation to provide value to the company, similar to ERM, it needs to be part of a framework that leads to decisions based upon its findings.

Capital Allocation via Best's Capital Adequacy Ratio (BCAR) Model

A key element in any capital allocation process is understanding how capital is defined, as the definition may differ considerably. Some measures for capital include: statutory surplus, GAAP equity, rating agency capital, and economic capital, all of which can vary significantly for the same company. BCAR is a ratio from A.M. Best's capital adequacy model that evaluates balance sheet strength by measuring adjusted surplus (numerator) relative to net required capital (denominator) to support risks emanating from invested assets, credit, reserves, premiums and business risk.

Table I

For purposes of the approach discussed herein, capital is considered under the context of rating agency capital as determined by BCAR (i.e., adjusted surplus). For more information on BCAR, see A.M. Best's Methodology Paper, "Understanding BCAR" (ambest.com/ratings/methodology/bcar.pdf).

For reference, Table I provides published BCAR minimums for B+ and higher ratings along with BCAR scores at the 25th, 50th (median), and 75th percentiles by rating as of July 2008.

Rating	Published Minimum	75 th Percentile	50 th Percentile	25 th Percentile
A++	175%	384%	305%	273%
A+	160%	368%	277%	207%
A	145%	387%	276%	224%
A-	130%	316%	239%	182%
B++	115%	287%	204%	165%
B+	100%	254%	176%	142%

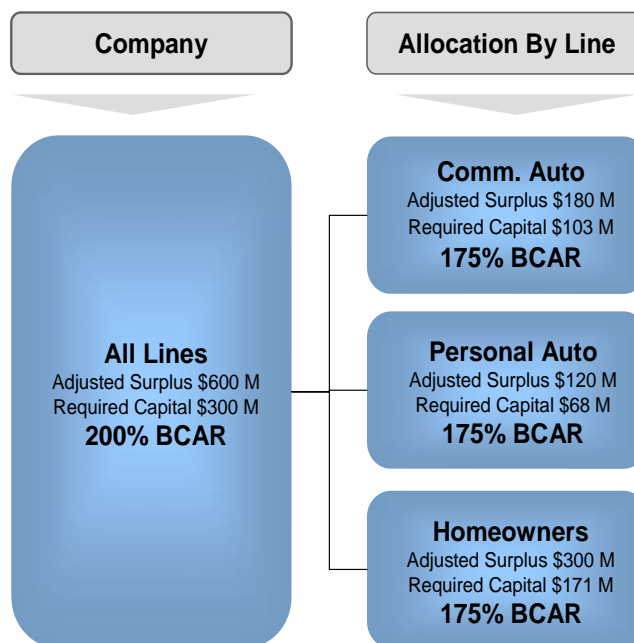
Source: A.M. Best's "Understanding BCAR"; Best's Statement File - P/C, US, v2008.7

The following section provides an overview of the algorithm for using BCAR as a process for allocating capital, discusses the handling of specific BCAR variables (growth charge and stress test), and provides sample output from Benfield's OptiCap.

Overview of Allocation Algorithm

The approach for using BCAR as a capital allocation tool is to have capital allocated to each line of business up to an amount that results in the same BCAR score for all lines (i.e., BCAR Equivalency target). Since BCAR is a risk-adjusted measure, requiring each line of business to maintain the same BCAR score implies that each line of business has an equivalent amount of capital as measured on a risk-adjusted basis. The approach is based upon allocating reported surplus and not necessarily reconciling to the published BCAR score which is based upon all lines of business. This can also be performed by allocating more or less than 100% of reported surplus if a company deems they have “excess” or a “deficit” in capital to support a specific rating level. Through this exercise, the resulting BCAR target will almost always be lower than the published BCAR score due to the unwinding of diversification and size benefits imbedded within the BCAR model when allocating capital by line of business. See Exhibit I for a simple illustration.

Exhibit I



To determine Required Capital by line of business (LOB), Loss and LAE Reserves and Net Premiums Written (NPW) are analyzed first as they are already separated by Schedule P LOB. Next, Fixed Income and Equity Securities (i.e., Invested Assets) are allocated on the basis of the amount of Net Investment Income for a given LOB relative to the total Net Investment Income. For Interest Rate risk, the market values of bonds, preferred stocks, and mortgage loans are allocated in relation to the size of the Invested Assets. Amounts in the Business Risk section are allocated in relation to the Gross Premiums Written (GPW) by LOB. Credit risk has three components – Agents Balances, Reinsurance Recoverables, and All Other Receivables. Agents Balances by LOB is reported in Part III of the Insurance Expense Exhibit (IEE) while All Other Receivables are allocated in the same manner as the amounts in Business Risk. Reinsurance Recoverables are allocated using information contained within Schedule P and the IEE.

Table II provides a summary of the allocation algorithm applied for the seven risk categories of required capital within BCAR: Fixed Income Securities, Equity Securities, Interest Rate, Credit, Loss and LAE Reserves, NPW, and Business Risk.

Table II

REQUIRED CAPITAL	ALLOCATION ALGORITHM
Fixed Income Securities	Assumes portfolio mix is the same for all LOBs. Invested assets are allocated based on the amount of Net Investment Income (including Realized Capital Gains) for each LOB, as reported in the IEE, relative to the total for all lines.
Equity Securities	Same approach as Fixed Income Securities
Interest Rate	<p>Duration – assumed to be the same for all LOBs (although duration may differ significantly between short-tail and long-tail lines, the expected impact on BCAR is not material)</p> <p>Market Value – same approach as Fixed Income Securities</p> <p>Gross PML – determined by catastrophe modeled results</p>
Credit	<p>Agents Balances – per IEE – Part III</p> <p>Reinsurance Recoverables – percentage of ceded Case plus ceded IBNR (per Schedule P) plus ceded Unearned Premium Reserves (derived via the IEE) by line of business to total reinsurance recoverables as reported on Schedule F, Part III</p> <p>All Other Receivables – percentage of GPW by line of business</p>
Loss and LAE Reserves	Reserves per Annual Statement’s Schedule P, Part 1 by LOB
Net Premiums Written	NPW per Page 8, of the Annual Statement, consolidated into Schedule P line of business
Business Risk	Percentage of GPW by line of business

It is noteworthy to highlight that the underwriting risk components of BCAR, Loss and LAE Reserves, and NPW risks, typically account for two-thirds of gross required capital. As such, the results from this process are fairly robust because there is already by-line detail imbedded within the BCAR model output for Loss and LAE Reserves and NPW risks, which drive Required Capital within the model. Ultimately, assumptions for every category in all lines of business can be augmented, if additional information is available, e.g., fixed income duration by line of business.

Reserve Equity is derived from required capital for Loss and LAE Reserves and Fixed Income Equity can be derived from Fixed Income and Interest Rate Risk required capital. As a result, these components of Adjusted Surplus are computed simultaneously with their related capital requirements.

UPR Equity is allocated using the IEE and Page 6 of the Annual Statement. Potential Losses (including catastrophes), i.e., Net PML, is determined through catastrophe modeling results and taking reinsurance structures into consideration. The final step is to determine Policyholder's Surplus by LOB, which is an iterative process, as the goal is to find the highest BCAR score that satisfies all constraints, e.g., growth charge, stress BCAR thresholds (discussed within).

Table III provides a summary of the allocation algorithm applied for the most common components of Adjusted Surplus within BCAR: Reported Surplus, UPR Equity (Net of Tax), Loss Reserve Equity (Net of Tax), Fixed Income Equity (Net of Tax), and Potential Losses (including catastrophes).

Table III

ADJUSTED SURPLUS	ALLOCATION ALGORITHM
Reported Surplus	Calculated to result in the same BCAR score for all lines of business. The score itself may be several points below the entire company/group score to account for diversification and size benefits that a consolidated company would be afforded.
UPR Equity	NPW and Unearned Premium Reserves by LOB per Page 6 of the Annual Statement; Underwriting Expenses by LOB per the IEE, Part II
Loss Reserve Equity	Reserves per Annual Statement's Schedule P, Part 1 by LOB
Fixed Income Equity	Difference between market value and statement value of fixed income securities as determined by Fixed Income Securities and Interest Rate risks noted in Table II
Potential Losses	Determined by catastrophe modeled results or actual losses from a catastrophe or non-catastrophe losses
Other	To be determined on a company-by-company basis

Treatment of Growth Charge

Growth charge is a penalty that A.M. Best assesses within BCAR on companies that have experienced significant growth from their perspective. A.M. Best believes that rapid growth comes with significant risk and may be a sign of weaker underwriting/pricing standards or lack of market knowledge leading to potential problems with claims handling and reserving practices. The basis for A.M. Best's concern regarding rapid growth and thus the use of a growth charge stems from the findings in their insolvency/impairment studies that attribute rapid growth as a common cause related to impairments.⁴

⁴ A.M Best. (2008). *Special Report: P/C's Low Impairment Trend Likely to Have Hit Bottom of Trough in 2007*, Oldwick, NJ (19 May 2008). www.ambest.com.

By default, the growth charge is calculated based upon the growth in GPW during the most recent year and is compared to the compound annual growth rate over a three-year period. Growth rate in excess of current thresholds set by A.M. Best (4% for one year, 6% based upon a three-year compound annual growth rate) results in a growth charge. Alternatively, A.M. Best analyzes growth based on exposure-based metrics such as policy count, which a company reports via A.M. Best's Supplemental Rating Questionnaire (SRQ). Before a penalty is applied, the current thresholds allowed for policy count growth is 5% for a one-year period and 6% annualized over a three-year period. A.M. Best often prefers to use policy count data to determine whether a growth charge penalty needs to be applied, as it is generally viewed better than GPW for measuring exposure growth. The growth charge, which can be 0% at minimum and 50% at maximum, increases the required capital to support Loss and LAE Reserves and NPW risks.

The challenge in assessing a growth charge within the Capital Allocation model lies in determining which of the following is a better approach:

- Applying the overall company's growth charge to all lines of business, or
- Calculating a growth charge independently for each line of business

Applying the overall company's growth charge can penalize lines of business that do not warrant a growth charge, thereby increasing their implied capital requirements. Conversely, it might benefit lines of business that have experienced substantial growth (above the growth rate of the overall company), which suppresses capital requirements for those lines of business. However, the current measure of the growth charge is done on a portfolio basis and even though BCAR segments required capital by line of business for Loss and LAE Reserves and NPW, the same portfolio growth charge is applied to all lines of business.

Calculating the growth charge independently for each line of business appears to be more appropriate within the context of a capital allocation framework. However, it should be noted that this method makes entering or expanding in a new line of business appear very capital intensive, even though it may be improving overall diversification. Further, under this method, growth in a complementary product may indicate a growth charge is applicable even though it is leveraging off a core product that is not experiencing significant growth. In these examples, applying a growth charge independently for each line of business may overstate capital requirements for some lines and understate it for others.

In the end, our recommended approach is to review capital allocation results under both methods of determining the growth charge and employ judgment to determine which method is more appropriate for a given case.

Treatment for Stress BCAR Implications

In 2005, after consecutive hurricane seasons of significant frequency and severity, highlighted by Hurricane Katrina with over \$44.9 billion in insured losses,⁵ A.M. Best released its methodology of stress testing capitalization to withstand the impact from two catastrophic losses, i.e., Stress BCAR. In a Stress BCAR analysis, a company's surplus in the Baseline BCAR model is reduced by the after-tax Net PML from a natural catastrophic event (larger of the 1:100 wind or 1:250 earthquake (EQ) or a recent actual event).

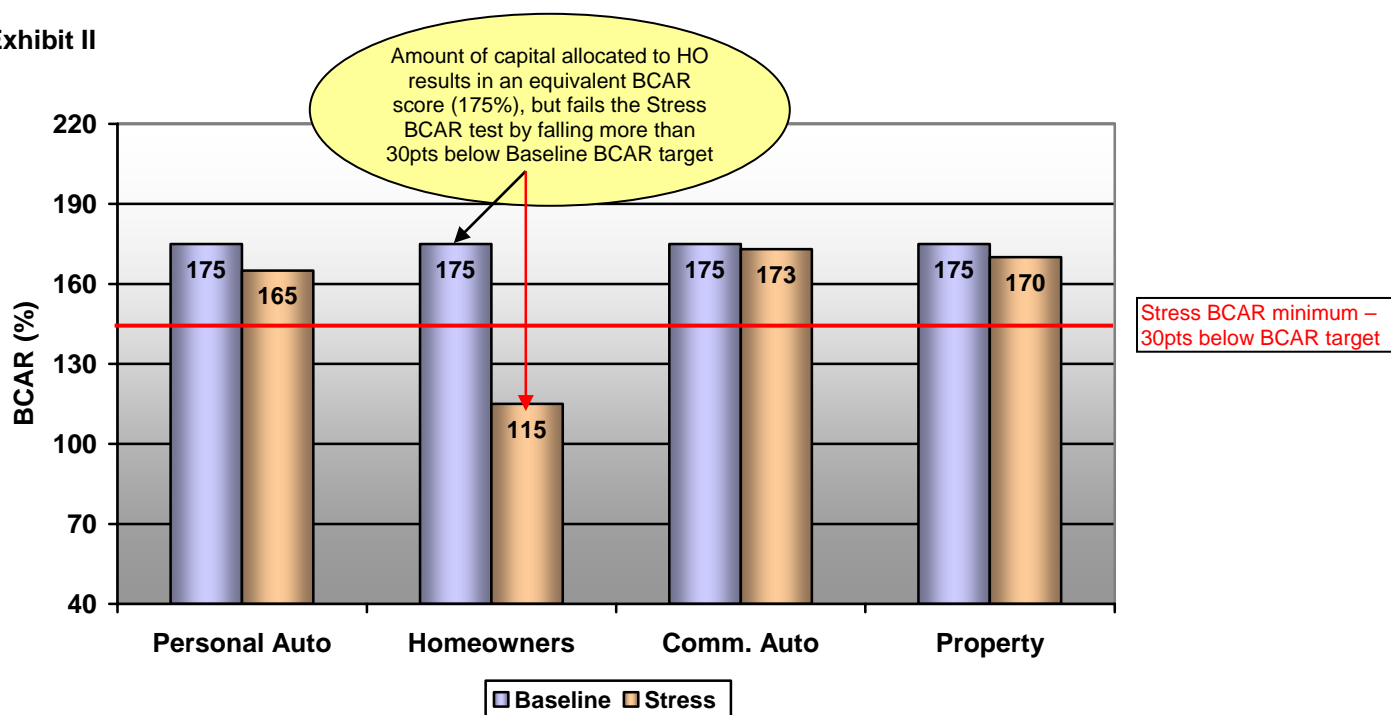
⁵ A.M. Best. (2008). *Special Report: Credit Crunch Clouds Outlook of Hurricane Insurers, Cat Funds*, Oldwick, NJ (19 May 2008). www.ambest.com.

Reinsurance recoverables are typically increased by 80% of the ceded losses, reinsurers are downgraded one rating level, and reserves are typically increased by 80% of the retained losses. Lastly, surplus is reduced again by the after-tax net PML of a second catastrophic event, the larger of a 1:100 wind (same as first event), or 1:100 EQ, or 1:250 EQ (if different locale than first event EQ). The stated guideline is that Stress BCAR should not be more than two rating levels (i.e., 30 points) below the established minimum Baseline BCAR score *required* for a given rating.

For more information on Stress BCAR, see A.M. Best’s Methodology Paper, “Catastrophe Analysis in Ratings” (ambest.com/ratings/methodology/catastrophe.pdf) and Benfield’s paper “Frequently Asked Questions regarding A.M. Best’s Analysis of Catastrophe Exposure” (www.benfieldremetrics.com/us/get.php?page=Rating_Agency_Consulting).

It is noteworthy to mention that for companies that engage in predominantly catastrophe exposed business, the Stress BCAR score is often the key metric in determining capital needs and the overall rating—not the Baseline BCAR score. In these instances, the Stress BCAR score has to be at or above a target set by A.M. Best with the Baseline score and its difference relative to the Stress BCAR score are not as relevant. As a result, Stress BCAR can complicate the approach of allocating capital based upon an equivalent BCAR Target for all lines of business, i.e., each line is equally well-capitalized. As depicted in Exhibit II, capital was allocated among four segments achieving a Baseline BCAR Equivalency Target of 175%. However, when applying the Stress Test, Homeowners BCAR score drops by 60 points, which is much greater than the 30 point tolerance referenced above and noted by the red line on the graph.

Exhibit II

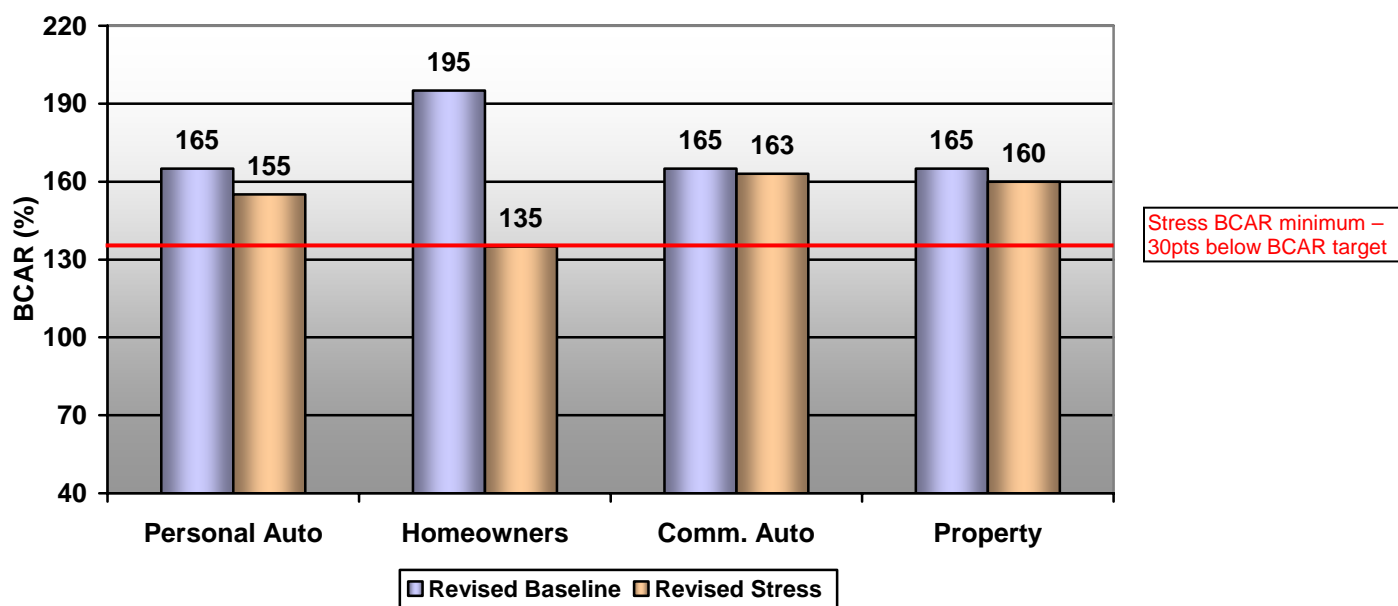


As noted previously, A.M. Best allows the Stress BCAR to be up to 30 points lower than *Required* Baseline BCAR. Since the Stress BCAR for the Homeowners line drops by 60 points, this creates a situation where capital allocation needs to be adjusted to arrive at scores that would be more appropriate.

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In general, the target Stress BCAR score should be at most 30 points below the by-line Baseline BCAR Equivalency target. In Exhibit II, this translates to a 145% Stress BCAR for the Homeowners line. Increasing the Homeowners Stress BCAR to 145% comes at the expense of lowered Baseline BCAR targets for other lines. Exhibit III shows the targets that would satisfy all constraints. Even though the Stress BCAR score for Homeowners is still 60 points lower after re-allocation, it remains within 30 points of the established BCAR Equivalency target (which is akin to the *Required* BCAR level referenced earlier).

Exhibit III



A.M. Best may perform other stress test analyses as part of their overall rating analysis. These are not as standardized as the catastrophe Stress test and also not considered within Benfield's approach. A method that requires each line of business to balance to the same Stress BCAR score was considered. This, however, was not appropriate, as equating Stress BCAR scores across lines of business (with only some subject to the catastrophe Stress test) may be overly punitive for property exposure. Further, given the same result, Benfield views that a Stress BCAR score indicates a stronger level of capitalization than the Baseline BCAR score.

Sample Output from Benfield's OptiCap

See Exhibit IV for sample output showing the results of capital allocation by line of business for XYZ Insurance Co.

Exhibit IV

200X BCAR Analysis - Capital Allocation By Line of Business

(All numbers in \$000s, unless noted otherwise)

NET REQUIRED CAPITAL	All Lines	Homeowners	Personal Auto	Comm. Auto	CMP	Sum of LOBs
Asset Risk						
Fixed Income	12,368	1,889	8,253	698	2,159	12,999
Equity	40,373	6,165	26,939	2,278	7,046	42,428
Interest Rate	13,051	1,736	8,708	588	2,019	13,051
Credit	49,550	1,755	13,470	33,195	3,949	52,370
Underwriting Risk						
Loss Reserves	128,861	14,515	110,794	4,172	7,605	137,086
Premium	288,225	59,114	153,821	18,207	100,152	331,294
Business Risk	0	0	0	0	0	0
Gross Required Capital	532,428	85,174	321,985	59,138	122,931	589,228
Less: Covariance	201,906	23,719	126,054	26,821	22,013	198,607
Net Required Capital (NRC)	330,522	61,455	195,931	32,317	100,918	390,621
ADJUSTED SURPLUS						
Reported Surplus	635,645	116,949	297,886	47,367	173,443	635,645
UPR Equity	40,910	6,035	20,342	5,518	8,004	39,899
Reserve Equity	12,828	117	11,372	459	880	12,828
Fixed Income Equity	0	0	0	0	0	0
Less: 1st CAT Event Losses	(43,550)	(21,645)	(6,175)	0	(15,730)	(43,550)
Adjusted Surplus (APHS)	645,833	101,456	323,425	53,344	166,597	644,822
BCAR Score (APHS / NRC)	195%	165%	165%	165%	165%	165%

Note: In the illustration above, all LOBs exceed the Stress BCAR thresholds and thus capital was not reallocated

As the results in the illustration demonstrate, the BCAR scores for individual LOBs are lower than the combined "All Lines" BCAR that A.M. Best would generate. This is primarily due to the unwinding of diversification benefit, leading to a higher required capital for NPW and Loss Reserves Risks and ultimately, a higher Net Required Capital (NRC) amount than on a combined basis. The largest factors to determine NRC on a combined basis are NPW Risk and Loss Reserves Risk, while on an individual LOB basis it can vary, as can be seen in the Commercial Auto column. The new Allocated or Reported Surplus by LOB allows Benfield to further analyze each LOB to determine additional implications of Capital Allocation.

As Exhibit V reveals, we can observe Premium Leverage and Profitability ratios on a by-line basis to ascertain which LOB contributes the most to profitability or subsidizes other lines by being less capital intensive. The results in Exhibit V correspond to the XYZ Insurance Company's capital allocation results shown in Exhibit IV. It proves that while the company has a Premium Leverage ratio of 1.5x, it is only the Personal Auto (1.8x) segment that can write that amount. Homeowners and Commercial Auto lines are much more capital intensive and thus can write approximately 1.1x to 1.2x. Similarly, although the Return on PHS on a company-wide basis is an ample 19.1%, this is predominantly due to the Personal Auto line of business.

Exhibit V

	All Lines	Homeowners	Personal Auto	Comm. Auto	CMP	Sum of LOBs
% of Net Reserves	100.0%	10.7%	81.5%	3.1%	4.8%	100.0%
% of NPW	100.0%	13.4%	55.2%	5.9%	25.4%	100.0%
% of PHS	100.0%	18.4%	46.9%	7.5%	27.3%	100.0%
Implied NPW / PHS	1.5	1.1	1.8	1.2	1.4	1.5
Return on Allocated PHS	19.1%	1.5%	28.9%	3.0%	20.1%	19.5%

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Pros and Cons of Using a Rating Agency Capital Model Approach

In recent years, many companies significantly reduced property exposures as a result of the increased perception of catastrophe risk highlighted by record storm seasons in 2004 and 2005. Following these events, catastrophe modeled results significantly increased loss estimates and rating agencies applied higher capital requirements. Many insurers, despite a strong pricing environment, still required a reduction in their property book due to capital requirements. To some degree these decisions are a by-product of capital allocation, regardless of the risk metric or method utilized.

There are numerous methods for capital allocation based upon a matrix of the appropriate risk measure and allocation method. As such, there is merit in utilizing rating agency capital models for the basis of a capital allocation approach, if only for comparison and informational purposes. Like any capital allocation approach, there are inherent advantages and disadvantages related to utilizing rating agency capital models.

Pros

- The standardized nature of rating agency capital models means that there will be a high degree of consistency in the allocation algorithm and results interpretation from year-to-year. As nationally registered statistical rating organizations, rating agencies publish their methodologies and are required to solicit public feedback prior to making any changes. This makes their models more transparent and easier to understand.
- For many companies the modeled results or return on capital are meaningful as capital requirements are heavily influenced by rating agencies (as many companies believe they are overcapitalized if not for rating agency requirements).
- Other benefits include manageable data requirements (mostly reported financial results) and low resource commitment which further creates an underlying consistency between reported results and capital requirements. Most of the capital allocation models require a significant investment of time and resources to fine tune the assumptions to reflect a company's risk profile. The resource constraints faced by many organizations deter them from adopting and properly implementing these models.

Cons

- The models are mostly historically based, and as such may not adequately reflect a changing risk profile, nor do they consider all sources of risk. The capital factors vary by company but are not tailored to a company's specific risk profile and often lag market conditions.
- The model does not adequately recognize the duration of capital commitment, especially for long-tail business, or the increased complexity of insurance products. Although there is a higher degree of consistency in the algorithm year-to-year, thresholds can change (e.g., Stress Test) which can significantly alter capital requirements and allocation.
- Rating agency capital models apply a simplistic formula approach to diversification and may not adequately capture hedging activities.

Many of these shortfalls are often similar to the reasons why rating agencies look beyond capital adequacy scores when making their final determination on a rating. Whether or not the disadvantages outweigh the benefits of using rating agency capital models for capital allocation purposes will invariably be determined on a company by company basis. Some key considerations will relate to the complexity of the company and its risks, the level of change within its risk profile, the importance of capital management, especially as it pertains to rating agency capital requirements, and the availability of resources.

Key Considerations

Throughout the industry capital allocation is a topic often discussed by senior management and consultants alike, but the process and results are far from standardized. When selecting and implementing a capital allocation model, senior management should incorporate some important considerations:

- **Company's goals & objectives:** The process often begins by establishing a risk measure as the basis for determining a capital allocation approach; however, there is no industry accepted optimal risk measure. There are also numerous methods that may be considered to allocate capital amongst various lines of business; therefore, the selected risk measure and approach should be closely aligned with the company's goals.
- **Dynamic process:** The process of allocating capital often contains as much "art" as it does "science" given numerous assumptions that are imbedded within the process that can significantly sway the results. Since management's perception of these assumptions change, the model has to be revisited continually over time.
- **Data Quality:** Just like any other system in place, the findings are only as good as the quality of the underlying data and assumptions therein.
- **Regulatory Issues:** There is the potential for regulatory constraints as it applies to the practical aspects of re-allocating capital among members of a group.

Given the considerations above, it is unlikely that one capital allocation model fits the needs of all organizations. For companies burdened by resource constraints, our suggested model may be a more pragmatic approach to this capital allocation riddle.

About Benfield

Benfield is the world's leading independent reinsurance and risk intermediary. With more than 1,900 employees in 50 offices around the world, we have the reach and the resources to deliver traditional reinsurance or capital market solutions, for any client, anywhere. Our clients include many of the world's major insurance and reinsurance companies as well as government entities and global corporations.

The Benfield ReMetrics Financial Consulting team specializes in providing financial and strategic analysis on issues that influence a company's financial strength rating such as "stress" testing, growth plans and/or change in reinsurance structures. Other consulting services provided include enterprise risk management, capital management, and reinsurance impact analysis. For more information, please visit our website www.benfieldremetrics.com.

Benfield's OptiCap™ model determines how much capital is required to support a client's specific line of business from A.M. Best's BCAR perspective. Results can be used to measure or gauge profitability, align compensation strategies relative to corporate risk appetite, diversification, and mitigation strategies such as use of reinsurance, and other hedging activities. Other benefits include consistent and transparent allocation algorithm, meaningful results, and low resource commitment.