



Recommended Surplus Range for GHMSI: Approach and Considerations for Determining the Appropriate Range of Surplus in 2011

Prepared for GHMSI

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Executive Summary

The Lewin Group (Lewin) has been retained by CareFirst/GHMSI to update our assessment of an “appropriate” range of surplus (measured in terms of Risk Based Capital) that GHMSI executives and leadership could consider in managing the company. Lewin performed similar analysis in 2009 for GHMSI, including 40% of Care First BlueChoice. CFMI and GHMSI also operate under an intercompany agreement which is intended to facilitate the movement of funds between entities subject to regulatory approval. However, while such transfer mechanism is theoretically available, there is substantial uncertainty as to whether this transfer would be allowed given the separate regulatory bodies involved. The purpose of this report is to identify a surplus range, and to discuss the risks, unique market considerations, and other factors that Lewin has taken into account to calculate a recommended RBC range.

Subsequent to our previous range estimates, the Patient Protection and Affordable Care Act (ACA) has introduced pricing and regulatory restrictions and significant requirements and market changes to the operation of health insurance entities. The enactment of ACA changes the historical market dynamics upon which working surplus levels have been managed and regulated.

- Contribution to surplus has traditionally been created from retained earnings generated by a relatively narrow range of underwriting outcomes applied against a relatively stable mix of product segment offerings. Emerging markets over the next several years will require a new understanding of the potential mix among product segments and related opportunities for contribution to surplus.
- Changes in market/ product mix will create discontinuities between historical experience and projections of anticipated cost. This greatly increases the risk of pricing errors and the resulting “down cycle” loss periods for which working surplus has traditionally been held.
- Changes in regulation and regulatory oversight, as well as new competitive market dynamics, will make the filing and implementation of corrective pricing actions less certain and less timely.
- The traditional cyclical process by which carriers recover from “down cycle” pricing errors through “up cycle” recovery has been altered. The Minimum Loss Ratio limitations and refunds effectively “clip” the upside potential for the carriers to apply favorable results to rebuild surplus levels. A good portion of the historical “up-cycle” contribution to surplus could be diverted to rebates.

As indicated in a prior report, we believe the passage of ACA will necessarily increase factors to be considered in setting working surplus needs. In the intervening time, we have essentially created another layer of simulation analysis. We have overlaid our working surplus models with microeconomic simulation of the financial impact of ACA-induced changes in both the dollar volume and potential risks associated with these newly shaped emerging markets.

Our analysis includes development of working surplus ranges based on current company financial information and interviews with company staff, as well as an assessment of the expected effects of ACA. As a broad categorization of our work, it is clear that health insurance

markets will become much more complex and more uncertain. By definition, this uncertainty correlates with higher risks and therefore greater surplus needs. Retrospectively-based factor formulas such as RBC will need to be expanded to consider the impact of a redefined marketplace when it comes to determining the need for working surplus – and potentially even for basic solvency measures.

Our Approach

The NAIC developed the concept of RBC to assist with the monitoring of insurers in order to be forewarned of potential insolvency. By designating a minimum solvency level known as the authorized control level (ACL), the NAIC created a standardized approach to insurance company monitoring. The development of the RBC and ACL gives regulators objective tools to monitor minimum amounts of capital needed to maintain financial viability; however, the RBC and ACL thresholds were not developed as tools for determining adequate or excess capital to be held by an insurer. Appropriate surplus must be held by an insurer to withstand the risks faced and to provide for capital needs that are above that of which can be paid for with current earnings. The passage of ACA creates additional pressures on the pricing and administration of health insurance as well as shifts in the mix of business for which risk is being undertaken. Implementation of these changes will occur incrementally over the next several years and adds uncertainty to our financial models. This report describes the amount of capital or ‘working surplus’ needed to maintain and thrive as an insurance company.

We developed our range of working surplus by using a projection model which estimates surplus requirements specific to GHMSI operations. The projection model uses the same broad categorization of risk as employed in RBC development, resulting in a range of risk outcomes.

The four categories of risk considered follow the RBC formula:

1. Underwriting Risk,
2. Asset Risk,
3. Cost of Capital and Credit Risk, and
4. Operational and Business Risk.

In addition to the risk categories listed above, surplus must also cover costs that maintain the insurer’s business vitality:

1. Planned Capital Expenditures,
2. Anticipated Business Plan Changes,
3. Direct Subsidization of the Health Care Marketplace, and
4. Social Mission Philosophy and Obligation.

In addition to our working surplus modeling, we must now address the impact of ACA on both the dynamics and volumes of business insured by GHMSI:

- We must consider significant potential shifts in the risk profiles and volumes of blocks of business being insured by GHMSI. Members will move between products as Exchanges and increased subsidized Medicaid availability options are implemented. Every

product segment may now represent a different risk profile and a different potential contribution to surplus from historical precedent.

- New underwriting and rating regulations will be developed in conjunction with ACA. These will alter both the nature of the resulting morbidity and the rating mechanisms by which surplus needs might be ultimately serviced.

In order to address these significant changes, we have employed a proprietary simulation model which reflects individual member reactions to subsidies, penalties, and regulations as they choose among a new landscape of product offerings. This is a simulation exercise which develops ranges of mix in volume and morbidity profiles for newly structured blocks of business. Some of this exercise can become almost circular – if the Exchange can capture a broad mix of risk, it becomes more attractive to even better risks. On the other hand, if this option becomes more anti-selective by individual and employer choices, the Exchange becomes less viable. Given the complexity, and current lack of clearly defined regulations, our simulation tends to be more scenario-focused and less stochastic.

We have employed our simulations to develop mix scenarios which might drive GHMSI product risk mix and contribution to surplus opportunity – essentially a future-state product mix. These products are then subject to the same modeling of RBC metrics as we see in our surplus simulation modeling – but are now scaled by the volume of business and different risk profiles such market components exhibit.

Our modeling took these considerations into account and modeled them in the specific context of GHMSI’s business and potential business profile after ACA. Our previous modeling also compared GHMSI to historically similar Blue plans to verify the range of surplus fluctuations, however with the changes in the marketplace due to the passage of ACA we felt that a historical comparison would not be useful.

Prospective Surplus Modeling and Model Results

The projection of GHMSI experience was accomplished by estimating the underwriting losses and gains using Monte-Carlo simulation techniques. We also took into account the impact of trends, incurred claims, regulatory factors, investment income, expenses and changes in membership. Specific ACA-related factors include the disbursement of rebates based on medical loss ratio, limitations on rate increases, member movement, and exchange-related expenses. The model uses experience from previous years to determine future premiums charged to customers that results in cyclical experience, which is similar to what occurs naturally in the health insurance market, known as the underwriting cycle.

The results of our Monte-Carlo simulations were compared with two important RBC thresholds, which the Blue Cross Blue Shield Association (BCBSA) maintains as part of their membership standards for use of the trademark. Two key thresholds involving surplus are based on the RBC formula, and are expressed generally as follows:

BCBSA Threshold	Percent of RBC-ACL
Early Warning Monitoring Level	375%
Loss of Trademark Level	200%

Reaching either of these thresholds signals to the market that a carrier is under financial duress and would likely result in a loss of customer confidence and a subsequent loss of business. As noted in our modeling conclusions, the 375% RBC target is a critical benchmark. Having long operated under the BCBSA trademark, any concerns which erode subscriber and provider confidence in retaining that affiliation will seriously undermine the ongoing operations of the company. Having breached the 375% threshold, this lack of confidence only serves to make it more difficult to improve surplus levels and avoid further deterioration. Previous testimony on behalf of GHMSI (Lewin and Milliman) has discussed the importance of these thresholds. It was acknowledged by the DISB that long-term solvency dictated the importance of GHMSI avoiding falling below the 375% threshold with a very high, degree of likelihood.

In addition to needing to adhere to BCBSA requirements, the District of Columbia has adopted statutory minimum requirements for the surplus levels of commercial health insurance companies, nonprofit hospital service corporations, and HMOs domiciled in the District. These minimum requirements are expressed in terms of a company's RBC-ACL level, and are generally consistent with the corresponding standards recommended by the NAIC and adopted by most states around the country. Upon triggering the 200% of RBC-ACL threshold, a domestic insurer must formally notify the District Insurance Commissioner of the corrective actions it plans to take. Direct regulatory interventions are triggered if surplus drops to even lower percentage levels.

As indicated above, 200% of RBC-ACL is the threshold for mandatory notification of a corrective action plan by domestic insurers to the District Insurance Commissioner. The 200% of RBC-ACL level is also the threshold at which a BlueCross and BlueShield Plan loses the use of the trademark. Stated in terms that may be more intuitive, 200% of RBC-ACL equates to approximately 2½ weeks' worth of insured (including FEP) member claims and expenses for GHMSI and its proportionate share of BlueChoice.

In order to fulfill its corporate mission, GHMSI must be stable and strong financially. Adequate surplus is needed to enable a company like GHMSI to ensure that the promises and commitments made can continue to be met. An RBC-ACL level below 200% would bring into question the solvency of GHMSI. The loss of trademark due to inadequate financial strength would likely be a catastrophic event: If the trademark were lost the remaining organization, and more importantly its District of Columbia, Virginia and Maryland subscribers, would lose the breadth and strength of the Blues’ system. Product recognition, favorable reimbursement rates out-of-area, and current levels of service would be forfeited. Certain other financial opportunities would also be lost as a result, such as the ability to offer benefits to certain large national accounts and the Federal Employees Health Benefits Program and the access fees for offering GHMSI’s network to other BCBS Plans. Furthermore, removal of the trademark due to financial weakness would open the door to the entry of a replacement BCBS Plan, presumably one domiciled outside of the District of Columbia.

Our analysis gave us the recommended range of surplus, which is noted below.

GHMSI’s Working Surplus Range	Low	High
% of RBC Level	1,000%	1,550%

Conclusion

Results are based on our market simulation of product mix and subsequent surplus modeling. We conclude that an appropriate range of working surplus for GHMSI to hold is 1,000% – 1,550% of the ACL. Our modeling indicates that GHMSI is currently holding an appropriate amount of working surplus.

Purpose of Our Analysis

Lewin has been asked to update our model of the “appropriate” range of RBC that GHMSI executives and leadership could consider in managing the company. The purpose of this report is to identify a recommended surplus range based on the current and near-term prospective health care environment, and to discuss the risks, unique market considerations and other factors that Lewin has taken into account to calculate the recommended RBC range.

Our analysis includes developing projected surplus ranges based on current company financial information and interviews with company staff.

Minimum Surplus Requirements Versus a Working Surplus Range

History and Limitations of the RBC Calculation

In the early 1990's, the National Association of Insurance Commissioners (NAIC) led the development of RBC standards to develop a formula-based measure reflecting the risks assumed by a Life and Annuity carrier. The result was the RBC Model Act. Health care insurers were not subject to many of the interest and investment matching risks of the Life and Annuity carriers. However, regulators were concerned about an increasing number of insolvencies among smaller health maintenance organizations (HMOs) and other health carriers. Additionally, regulators came to recognize that the nature of a carrier's contracts for the reimbursement of health care services, products offered, and general business operations introduced a fairly wide range of risks.

Recognizing the limitations of the original RBC Model Act when applied to health insurers, the NAIC developed the Health RBC Model Act in the late 1990's. The Health-based RBC calculations offer a standardized approach to developing a minimum solvency indicator, known as the authorized control level (ACL). This is a valuable metric because it is derived from, and included in, the NAIC annual statements. It provides regulators a consistent benchmark across a variety of carriers to take action based on risks as identified by a common formula. However, it is important to recognize that the formula was developed as an indicator of minimum acceptable surplus levels. In both its development and application, the RBC benchmark was developed and tested to provide regulators with an indication that an insurer's financial condition requires immediate monitoring and possible intervention.

Unfortunately, the fact that a recently computed RBC value is documented for each carrier offers a "common denominator" for comparison among carriers. Just as "months in reserve" or percent of revenue had been used to rank companies by relative levels of surplus, RBC-multiples have been used to develop broad rankings of financial strength. However, use of the RBC value for any measure other than as a regulatory minimum surplus is inappropriate:

- The RBC formula computes a static measure of currently required minimum surplus in the context of solvency requirements at a single point in time. It measures nothing with regard to issues of long-term solvency in connection with future cash flows or vitality and other surplus requirements connected with long-term management of the plan.
- The RBC triggers were modeled only in terms of the ability to suggest that a carrier might not remain solvent should surplus fall below a trigger level.
- The development of the RBC formula included no consideration of a specific multiple of RBC as representing either "optimal" or "excessive" surplus.
- RBC values were designed to be computed from a finite set of entries available in NAIC reporting formats. The exact allocation of some of the reported elements and applicable factors can vary from entity to entity based on business mix and possibly allocation and reporting judgments on the part of those doing the reporting.
- Both in creating a common formula, and selecting the appropriate RBC factors for the formula, compromises were made which allow the formula to provide an adequate

determination of potential insolvency. However, these compromises were at the expense of a generalization that may not reflect specific surplus issues for a given carrier.

As we move forward under ACA, challenges arise in the use of the RBC formula for assessment of working surplus requirements, and potentially even solvency applications. The formula is based on application of a series of multiplicative factors created from extensive modeling of historical variability in industry outcomes for certain risk elements. ACA will substantially alter these historical patterns from those on which RBC factor analysis was based. While the risk categorizations are still valid, mechanisms which drove potential variability will undoubtedly change. Eventually, formula factors catch up with emerging experience, but historically-based formulas will necessarily be challenged by increased uncertainty during a period of change.

This in no way detracts from the RBC measure as a valuable architecture for identifying problem situations which may require intervention from regulators. It merely suggests that while RBC measures may remain appropriate for identifying carriers with solvency problems, other metrics are more valuable for developing optimal working surplus targets. In particular, the precision of RBC factors as a predictor will be challenged in the face of ACA changes, and additional scenario modeling and potential conservatism is likely warranted.

Development of a Working Surplus Range

Given the limitations of the RBC in establishing an appropriate amount of surplus, we have employed an approach that is aimed at identifying a working surplus range. A working surplus range is defined as the surplus a specific insurer needs to maintain operations, and ranges are unique to an individual insurer and the market in which the insurer operates. Working surplus ranges can be developed by using a projection model which estimates surplus requirements specific to a plan's operations. The projection model uses the same broad categorization of risk as employed in RBC development, yet the end result is a quantification of the probabilities of a range of risk outcomes instead of a single factor to estimate the minimally acceptable surplus levels of the RBC formula.

Patient Protection and Affordable Care Act (ACA) Considerations

The passage of ACA will have many effects on the calculation of RBC, since ACA is transforming the historical business model for health insurance. There is still a good deal of uncertainty as to how regulations to implement the goals of ACA will ultimately be written, interpreted and enforced. Issues will certainly be resolved over the next few years, but a great deal of uncertainty exists in the current timeframe. Delays, modifications, and even wholesale changes, are very likely to occur. We can anticipate changes in products and operations stemming from the introduction of insurance Exchanges and Medicaid expansion. We have modeled and can extrapolate a variety of potential changes in behavior of consumers and providers as changing regulations and coverages affect these stakeholders. There is no clear single reliable projection as to these outcomes. However, it is possible to articulate a logical range of potential results. In terms of risk management and surplus needs, this range of outcomes, by their very definition, increases the uncertainty facing health insurers, and will restrict the insurer's ability to recover from adverse events.

Our model considers the following effects:

- **Medical Loss Ratio (MLR) limits:** If an insurer's MLR is below a certain threshold, the insurer is required to pay a rebate to their customers. This results in an asymmetrical risk profile for health insurers in that they have to pay rebates when there are financial gains but their ability to recoup losses is restricted. At the same time there is an increased cost of compliance with paying rebates, since ACA puts the onus on the insurer with heavy fines if the rebates are not administered correctly and in a timely manner. Therefore the MLR requirements in ACA increase administrative burden while intensifying pressure to constrain administrative expenses and premium rates.
- **More stringent rate review framework:** At the same time that there is an increased cost of compliance with many ACA requirements, there is a lessened ability to increase premiums to cover this cost due to rate increase approval processes and restrictions. Rate increases will be more constrained than they were previously, and we have reflected this in our model.
- **Increased trend risk:** Reform changes create entirely new mixes of morbidity and products for payers. This could diminish the reliability of historical trends as a basis for rate projections and further increase the odds of unfavorable material trend misses and resultant negative impacts on surplus.
- **Guaranteed issue and restriction on rating** in the individual market could result in gradual adverse selection of the individual pool over time. Guaranteed issue will increase costs if the individual mandate is not sufficient to effectively offset adverse selection. Restrictions on rating will cross-subsidize more expensive populations and further discourage healthy risks from purchasing products which they perceive to be overpriced.
- **Risk Adjustment** will attempt to offset adverse selection between carriers, however the methodology is not finalized at this time and therefore the result is increased uncertainty in the industry.

Risk Categories

In developing a working surplus range, we will follow the general risk categories used in the RBC formula¹:

1. **Underwriting Risk.** This is the largest risk component creating surplus demands for health care insuring entities. Historical results, confirmed by an understanding of the general health care business model, show that surplus must be available to absorb potential multi-year adverse underwriting results

¹ The broad major categories of risk are addressed in the RBC formula and are therefore implicitly included to that extent in the historical comparisons of surplus held by other carriers. Underwriting and Asset risk can be modeled in a relatively straightforward set of scenarios. Operational and Business risks are more difficult to quantify, as they tend to represent low probability events, but with high impact. Part of the reason for establishing a working surplus range is to assure that some surplus might still be available under more common scenarios to cover these events.

- Surplus is required for maintaining solvency in the face of anticipated long-term fluctuations in underwriting results for health care operations.
 - It is modeled in such a way as to reflect the unique underwriting characteristics and mix of business for the GHMSI products being offered.
 - Surplus requirements must also address non-routine catastrophic risks such as epidemics or natural disasters. Many of these non-routine risks can be categorized as “low probability / high impact” events.
2. **Asset Risk.** While the issue of matching assets to liabilities is not as significant as for life or property and casualty carriers, health care insurers face specific risks associated with their investments portfolio. Since health care insurer margins are relatively thin, investment income on accumulated surplus can be relatively significant.
- Working surplus must be available to handle the risk of short-term liquidity requirements in the face of adverse cash flow.
 - Risk quantification must consider the impact of interest changes on investment contribution to surplus and on the value assigned to the assets which form the basis for surplus determination.
3. **Cost of Capital and Credit Risk**
- Surplus requirements must consider the impact of solvency and cash flow issues stemming from contracts with health care providers, self-funded employers, and other vendors.
 - Surplus may have to absorb changes in the demand for capital expenditures and the cost of funding such initiatives.
4. **Operational and Business Risk.** Even “risk-free” products such as administrative services only include risks which surplus may be required to fund. Additionally, there are risks associated with the general business operations which may create adverse outcomes and resulting surplus drain.
- Litigation costs,
 - Regulatory and Tax changes, including possible health care reform,
 - Dramatic changes in membership distribution between products,
 - Expense recovery as impacted by business and portfolio changes, and
 - Business recovery costs associated with natural disasters.

Determination of working surplus levels can be achieved by modeling these risks using the specific risk parameters of GHMSI. The goal is to develop the probability of aggregate negative outcomes, and then, to establish sufficient surplus to weather these outcomes.

Vitality Considerations

In addition to the above risk-based outcomes associated with solvency objectives, a working surplus range must include an allocation of surplus required to maintain the vitality of an insurer’s operations. These are not necessarily current liabilities, and may be somewhat flexible in terms of timing and scope. However, they characterize known future allocations of surplus

required to maintain a specific insurer's role in health care insurance and delivery. These vitality-related considerations include:

1. Planned Capital Expenditures

- Capital must be allocated to specific known or anticipated business initiatives which require a long-term horizon for completion and funding.
- These items are usually distinct from potential risk-based expenditures in that they tend to have very high probabilities of execution.
- These expenditures are typically multiple year commitments and are usually too costly to be directly included as operating expenses in rate development for any single year. Most not-for-profit plans finance such large-scale expenditures from surplus and investment returns on surplus.

2. Anticipated Business Plan Changes

- There can be significant long-term costs associated with product development required to react to market changes (e.g., operational changes to support consumer-driven health care).
 - In addition to administrative cost, competitive pressures can impact product morbidity levels.
- **Direct Subsidization of the Health Care Marketplace.** Plans with dominant market share in regulated markets are often constrained in their ability to fully charge for their cost of services. This can take the form of either regulatory constraints or an inability of employers and individuals to accept sizeable increases. In such cases, there may be a known subsidy in terms of a difference between known costs and rates charged. This scenario is particularly true for certain types of BCBS plans, such as GHMSI, who have a large market share within their respective markets.
- 4. Social Mission Philosophy and Obligation.** BCBS and other non-profit plans tend to be more deeply involved in the overall social and economic aspects of their markets than plans with geographically diverse markets and relatively modest market share. These social mission obligations can go well beyond the more narrow concerns of a for-profit or geographically diverse health care insurer and in order to meet these obligations in the future, must be considered in analysis of working surplus targets.

Surplus Considerations for GHMSI

Prior to modeling GHMSI's target surplus level, we needed to first assess the risks and capital demands, discussed above, within the context of GHMSI. GHMSI, like all insurers, faces certain constraints and issues specific to its operations. Identification and quantification of these risks and capital demands are the determining factors in establishing appropriate working surplus targets.

Access to Capital

If GHMSI is to remain competitive with their large commercial competitors, it must address technology and market initiatives with its own response.

One recent example was the needed large-scale update to computer systems used for GHMSI administration of its insurance products. Recent market demands include improvements in technology to service new trends such as consumer driven health care products. Along with the rest of the health care industry, GHMSI faces the need for additional investment to allow it to offer members medical homes, communications improvements, data to feed consumer reporting related to quality and access, and the internal analysis to keep track of the emerging operational and cost data.

Since GHMSI lacks publicly-traded access to equity markets, funding for these initiatives places a demand on accumulated surplus and future gains from underwriting and investment. Even with the exception of "up-cycle years", market constraints limit the margin in rates available in any given year and thereby limit funding for these capital investments – even over a multi-year period. Therefore, working surplus targets must include the need for such capital investments as a means of spreading the cost over longer periods.

Economic Concentration Issues

Due to its geographical market limitations, GHMSI faces more concentrated economic risks than its geographically diverse competitors. Since the timing and depth of problems in a local economy can vary from region to region, geographically diverse carriers have some ability to shift marketing emphasis to weather a local downturn.

The ability of GHMSI to raise rates or sell new business can be significantly undermined by a downturn in the local economy. Such downturns are doubly damaging, since they are typically associated with poorer investment returns. The contraction of the economy reduces the number of new employees being added to accounts and can often cause insured businesses to fail or drop their coverage. These lapses can increase overall claims cost morbidity as young healthy members are terminated, exactly at the worst possible time to increase rates.

In the metro-Washington DC area, the local economy is steadier because of having the Federal government within GHMSI's territory and the large FEP contract that GHMSI holds. The recent economic downturn was slightly less severe in GHMSI's geographical footprint than it is in other parts of the country.

Regulatory and Legislative Issues

GHMSI tends to become the “carrier of last resort” when the local or state government is faced with the problem of access to coverage. In the metro-DC area, GHMSI is required to offer guaranteed issue contracts to locally uninsurable residents. Additionally, GHMSI is required to pay premium tax in Virginia and in the District. Maryland requires GHMSI to provide community benefits equal to two percent of revenue. GHMSI generally meets the Maryland requirement through financial support of community benefits programs rather than direct payment of premium taxes.

Business Risks

All insurers face certain business risks in terms of changes in contractual relationships and risks being insured. In addition to the general potential business risks, several specific situations can be identified which might require a call on surplus while GHMSI adjusts to a change in these risk arrangements.

Federal Employees are covered under a unique arrangement.

GHMSI is a participant in a consortium of BCBS plans contracting with the federal government to offer benefit options to federal employees. The current GHMSI program involves consortium rate stabilization reserves with sufficient backing to render this a relatively low risk business. However, it consequently offers lower margins and therefore means that GHMSI cannot generate needed surplus on a third of its revenue. This program represents about 53% of GHMSI’s annual revenue and would clearly be a major shift in risk if contractual changes were made. When comparing results against other plans for either surplus levels or the ability to quickly generate needed contribution to surplus, the Federal program impact needs to be factored into the assessment of GHMSI.

Several situations regarding this program represent more unique risks, but are nonetheless issues which must be considered in GHMSI strategic and surplus planning:

- Events triggering a loss cycle for GHMSI will typically impact other carriers, and usually most of the BCBS plans providing coverage for FEP. In cases of significant plan losses due to trend pricing misses, the ability of the collective risk stabilization reserve to spread losses across plans will be jeopardized and GHMSI may actually have to fund losses from surplus.
- The FEP program is often quoted as a baseline for reform initiatives. Any changes to the program – whether as an expansion by extension to new members or some other restructuring – represent a potential change in RBC status for GHMSI. We did not consider these specifically, but most scenarios would represent a demand for higher surplus without any mechanism for funding such demand in the short term.
- CareFirst provides services for the administration of the entire FEP program for the coverage consortium. GHMSI and its sister companies enjoy a favorable administrative expense arrangement through this plan by spreading general expense overhead as well as certain systems technology costs. The administrative arrangement may be revoked by the Blue Cross Blue Shield Association (BCBSA) if CareFirst should lose the BCBS trademark or fail in certain other service standards.

These again represent issues that must be addressed in setting working surplus targets because they represent singular, but still potential, high-end surplus drawdown scenarios.

Investments and Pension Obligations

As noted previously, GHMSI's surplus serves to meet the company's RBC requirements. The investment of these funds provides an important additional source of revenue for the organization, returns on invested assets. GHMSI's investment portfolios are a key contributor to its surplus stability and cash flow; however, in economic downturns it can further exacerbate the organization's losses. Investment decisions are implemented by Management as directed by the Board's approved Investment Policy which is also used for other CareFirst entities.

GHMSI maintains an extremely conservative asset allocation, predominantly holding investment grade bonds.

GHMSI continues to be exposed to potential downturns in equity markets and further downgrades within fixed income securities that could result in material realized losses through Other Than Temporary Impairment (OTTI). Lower bond and dividend yields could reduce projected investment income that has traditionally been used to offset premium rate increases in its various products. Furthermore, market declines could lead to additional funding requirements of the pension plan.

Surplus Ranges in the Context of Prospective Modeling

To prospectively model GHMSI's working surplus range for GHMSI management, we employed an actuarial model which uses the same broad categorizations of risk as employed in RBC development. However, the end result is a range of surplus outcomes rather than a specific minimum threshold.

In this case, we began with the pro-forma projections GHMSI employs to develop budgets. The model focuses on a multi-year projection based on a number of input variables typically used by actuaries and underwriters to model most likely financial outcomes. In many cases, unforeseen events or trends emerge which vary from these projections. Depending on the triggering event, these variances can range from minor to quite extreme.

Model Characteristics

One of the most significant surplus requirements is related to underwriting risk. This demand on surplus can be approximated by the amounts required to absorb accumulated underwriting losses during a multi-year loss cycle. These loss cycles are actually cause and effect outcomes of the dynamics of pricing reaction to a triggering event. Therefore, our stochastic model is designed to develop a probability-weighted set of outcomes resulting from such triggering events based on the mechanics by which GHMSI must rate its business.

Our model develops an estimate of income statement underwriting gains and losses, since this is the major component of GHMSI's contribution to surplus. Some of the variables and operational elements employed in our model include:

1. **Impact of Trend Estimates.** Differences from projected estimates of anticipated cost trends are the substantial contributor to the development of future losses or gains. As described above, the combination of the length of time to recognize an error and to implement changes tends to create a multi-year impact.
2. **Incurred Claims Estimates.** Since incurred claims estimates are based on projections from historical data, differences between projected unpaid claims liabilities and the ultimate payments made against those claims are commonplace. Such misstatements of the liability do not create an absolute loss in the context of a multi-year cycle. The understatement or overstatement in a given year is a timing issue which distorts earnings by year, but does not misstate them across several years. However, the estimates also form the basis for an understanding of incurred claims levels used in pricing decisions. Therefore, an error in unpaid claims estimates will directly impact the projection of subsequent costs used for pricing. The need to complete claims is therefore a very common cause for a delay in recognizing changes in emerging cost trends and resultant pricing mismatches.
3. **Unique Morbidity Events.** GHMSI faces the potential of significant increased morbidity due to influenza or other large-scale disease outbreaks. Such episodes offer low probability, but high-cost, impacts that one would not typically load into projected costs used in pricing. These are also difficult to model, since it is difficult to assign a probability of occurrence or dollar impact. One aspect of choosing a confidence level for

targeted working surplus is to make certain that appropriate consideration is given to the very real impact of such low-probability / high cost events.

4. **Regulatory and Marketplace Limits.** The ability to charge targeted rates can come into play when projected cost increases exceed the ability to effectively recover these costs. It has already been announced that regulators will be expected to create additional review of “excessive” rate increases exceeding 10%. This suggests a pre-disposition against what might well be reasonable increases based on experience. Additionally, churn in the market/product mix will likely require adjustments to historical experience. Such adjustments make rate development less transparent and more subject to review.
5. **Investment Income.** We used current surplus levels as our starting base and increased or decreased surplus by any investment income produced by the asset mix underlying the organization’s Corporate Investment Portfolio at its anticipated rates of return for each year. To the extent that our model simulates an underwriting loss in any given year, investment income (if greater than the underwriting loss) is reduced to offset the loss. If the underwriting loss exceeds the investment income, surplus is reduced to offset the excess loss. As such, returns on investment assets are based on the net assets in any given year. Since we do not believe the current economic recession will persist materially into our projection period and asset earnings yields are slowly returning to their long-term historical averages, we did not attempt to make investment return a stochastic variable in our model. Instead, we have assumed CareFirst’s Corporate Investment Portfolio average rate of return will be based on a CareFirst dollar-weighted average of each asset classes’ historical average rates of return. In light of this assumption, we did not attempt to project write-ups, write-downs or AFTAP adjustments resulting from unfavorable rate of return scenarios; however, in actuality those events may still occur. We did test and incorporate dynamic return scenarios in developing our estimate of working surplus levels.
6. **Expenses.** We used current expense loads as reflected in pricing as well as projected capital expenditures which have recently been reduced as a result of the completion of an IT systems updating project. We did not reflect income tax as an expense since our focus was on underwriting losses and their impact on accumulated surplus.
7. **Membership.** Based on discussions with GHMSI management and Lewin’s microsimulation of the health care marketplace, we have accounted for expected shifts and additional uptake in health insurance due to ACA. Our modeling includes the effects of subsidies to lower-income individuals and mandated coverage requirements on the underlying population of the GHMSI service areas. Underlying populations are estimated using various census data, with migration from traditional coverage to newer, subsidized coverage plans for those who qualify, such as plans offered through the health care exchanges. We also consider the current trend from more traditional plan designs into higher deductible consumer directed health plans. The RBC calculation is to some degree scalable and is expressed as a percentage of current volume values. This makes the growth in membership a less critical assumption.

Most significant in setting working surplus ranges are potential underwriting losses. In general, this risk is categorized by a mismatch between the claims costs incurred by insured members and the plan’s ability to charge a rate sufficient to cover this risk. Clearly, if the carrier

can achieve matching of rates to expense then there is no drain on surplus. In fact, most health care rates are established with a goal of achieving margin as contribution to accumulated surplus. The exact matching of projected claims costs to those realized, however, is seldom precise. Most of the rate a plan charges its members is used to pay for medical and drug claims. GHMSI employs as much analysis and insight as available to estimate future claims costs. However, actual claims costs will almost always show some degree of variation from those expected. The causes are common to all insurers:

Unanticipated changes in the cost of services as billed by providers;

Increasing variability in cost per service – driven by new treatments and technologies; and

Variation in the frequency in which members seek these services.

However, results can vary greatly due to the extent to which each of these factors and their multiplicative impact has been shown to change over time. Quite often, the cause for the variation is simply not something which GHMSI could foresee early enough to factor into projected rates.

Cyclicity

Historical underwriting results for most health insurers have been somewhat cyclical, characterized by several years of gains and then several years of losses. For many years, collective underwriting results across the health insurance industry showed such a steady three-year “underwriting cycle” that they were treated as if automatic. This actually confuses cause and effect – ignoring the fact that a commonality of pricing methodology and marketing actions in response to changes in risk and cost actually created this cycle.

One of the fundamental tests of surplus adequacy is therefore the ability to weather the period of financial down-turn periods until such time as gains can be accrued to maintain financial solvency. Unforeseen events that create a mismatch between pricing and claims costs are additionally somewhat cyclical themselves. The overall business economy impacts the revenue providers feel they must generate and the perceived ability of employers and members to pay increased rates for coverage. Such changes in economic cycles are typically multi-year events. Similarly, new technology, drugs, and treatments tend to roll out gradually often raising the cost to a new plateau rather than having a quick impact. Claims cost changes tend to have a multi-year impact rather than a one-year variance.

The actual processes of analysis and implementation in health care insurance pricing in reaction to the above changes in cost actually explains the second major contributor to this historical cyclicity.

1. Historical Data and Analysis Lag

- a. The insurer’s primary basis for projecting future costs for a block of business is their own emerging experienced PMPM cost trends. This can be adjusted for anticipated changes in cost and utilization based on benefits and contract negotiations with providers. Such adjustments, however, are judgmental and must include potential changes in morbidity due to aging and/or lapses, as well as the members’ response to the anticipated changes.

- b. To make emerging PMPM experience trends as current as possible, the analysis must include an estimate of unpaid claims (IBNR). This recognizes the delay between the incurral of a claim and the date it is actually processed and paid. Unless this estimate is included, the recognition of emerging trends based on fully incurred claims is delayed by an additional 3-6 months. However, the addition of IBNR is again judgmental, and actually somewhat circular. The most recent months in most IBNR estimates rely on PMPM trend estimates, which are the near-term goal of the trend-setting exercise.
- c. Identifying a shift in emerging fully incurred PMPM costs can be difficult. PMPM claims costs often exhibit seasonal patterns, random fluctuations, and shifts in the underlying morbidity of the membership exposure. All of these can obscure the true cost pattern developing. In general, pricing trends are established by attempting to understand the emerging patterns and determining if they can be projected to future periods.

2. Recognition and Movement to Action

- a. Given the above uncertainties, insurers may often detect a potential shift in cost but may not be ready to act immediately. Future rate increases are somewhat limited (or at least made more difficult) by new regulations in ACA, and will not typically be taken by the insurer until they are fairly certain there are not statistical problems or temporary spikes.
- b. Even if relatively confident of an emerging trend, new rates are only as achievable as the insurer's ability to convince regulators and clients of the correctness of the estimate. An insurer might feel it is necessary to raise rates, but if no other carriers are raising rates or if the employers do not perceive the change as valid, most insurers have been forced to modify or defer the increase. This is one reason why such downturns in results impact the entire health care sector.
- c. Significant changes in rates may not be possible. If the claims cost change is dramatic, the resulting increases in rates may be larger than the employers can handle on short notice. Very large rate increases can actually be counter-productive. If the increase is large enough, many clients will seek other insurance carriers in hopes of cheaper or more manageable increases, especially with the insurance exchanges to be operating in 2014. Among smaller employers and individuals, the choice may be to drop coverage altogether, or seeking less costly coverage on the Exchange. Besides lowering the overall revenue, many times the members lost are actually the healthy insureds – as they can go without coverage although they would have to pay a penalty under the mandate requirements.

3. Implementation of New Rating Assumptions

- a. Rates are most commonly increased on a contract effective date for each client under a 12-month rate guarantee. Full implementation of new rate levels therefore requires waiting until all the clients have come to their renewal date. With the need for notification of new rates, and sometimes regulatory approval, it can commonly take 18-24 months to complete the process going from the determination of new rates to complete implementation for an entire block of business.

- b. Given that the events causing increases in claims costs are typically multi-year phenomenon, the above cycle of analysis-recognition-implementation may actually be underway for the currently anticipated cost level while a new, higher cost level is still emerging.

Surplus is required to weather the losses created by the above processes. The sequence of pricing error, recognition of an event, action taken, approval, and implementation creates a sizeable delay between the occurrence of an event or shift in cost and full implementation of rate changes in response. As a result, precedent has shown health care insurance losses experienced in a given year are most often followed by even deeper losses in the second year as rates are being adjusted. If the events triggering the losses are fully appreciated, and not compounded by another unanticipated cost increase, some reduction of losses begin in the third year as rate increases take hold.

While not guaranteed, it is clear that underwriting cycles do not “just happen”, but are caused by the collective pricing actions of the marketplace in response to unforeseen events. Most importantly to our exercise in establishing appropriate working surplus targets is the recognition that these multi-year earnings troughs constitute one of the primary drains on an insurer’s accumulated surplus level.

Far from eliminating the causes of cyclicity, ACA actually creates incentives and mechanisms that are likely to deepen and lengthen loss cycles. The above mechanisms are actually deepened and lengthened:

- New subsidies and penalties, expansions of Medicaid, and the introduction of Exchanges will alter the future insurance pool compared to the historical mix of insured members and morbidity. This makes traditional historical cost analysis a much less reliable predictor of future costs and therefore greatly increases the potential for an error in estimating emerging experience for pricing.
- The entire process of determining liabilities, detecting trends, and determining causality is challenged by changes in the underlying risks and historical run rates.
- Once established as an emerging trend, the historical nature of trend projection and rate justification will be more complex with carriers having difficulty generating unequivocally convincing analysis to convince regulators of the need for an increase.
- New players and new programs will expand the marketplace, but also create potential for a less efficient market. The ability to implement increases for emerging costs may well be dampened while the rest of the market achieves the same understanding.
- The opportunity to apply “up-cycle” gains as contribution to surplus will be limited by the MLR/Rebate aspects of ACA.

Modeling Trend Assumptions

It is important to note that the “trend miss” which triggers such loss cycles is really a function of the differential between the current pricing trends and the potential trend outcomes. We have therefore modeled our scenarios on current GHMSI pricing and anticipated trends. In reviewing current GHMSI trends, however, we have noted certain local market conditions:

- Trends used in this exercise are “net trends” and cover all services. This means they are impacted by changes in member cost sharing – also referred to as “benefit buy-downs”. This temporarily reduces the unit cost component in the plan trend by shifting some of that cost to the insured.
- A number of the trends used in this modeling exercise appear low compared to expected market averages because of what we believe had been significant benefit buy down. This has modeling implications because such increased cost sharing cannot continue over extended periods and will eventually result in a resumption of expected trend levels when underlying trends reassert themselves.
- Other products exhibit somewhat higher trends due to “trend leveraging” or “deductible leveraging”. As the average benefit content of such products reflects greater member cost sharing, the base cost against which overall medical trend is applied declines. Additionally, the numbers of members satisfying a given higher deductible level increases and more members reach maximum out of pocket limits. In these plans, it is common to therefore see plan-specific trends which exceed the secular average trends.
- GHMSI provided trend data including medical, dental, and vision components. We have made the general assumption that the mix of these various business components will not change.
- Net trends were simulated assuming a “random walk” with a mean-reversion process. A random walk is a mathematical formalization of a trajectory that consists of taking successive random steps, also known as Brownian motion. The random walk is used in simulating net trends based on the assumption that trend rate changes are independent of one another. Mean reversion can be thought of as a modification of the random walk, where trend rate changes are not completely independent of one another but are related. Mean reversion assumes that the net trend rate will continue to return to an average value over time, despite fluctuations above and below the average value. We assumed the average net trend rate value over time, and its associated volatility, are consistent with the historical average annual trend rate produced by the private component of the national health expenditure amounts. In addition, we assumed a speed of reversion factor (i.e., the speed in which the simulated net trend rate returns to the average net trend rate value) that is consistent with the historical values simulated from the national health expenditure annual trend rates.

Modeling Underwriting Outcomes

Our model produces underwriting gains and losses over a typical underwriting loss cycle based on stochastic modeling of potential outcomes associated with various percentile levels. We chose to focus on outcomes at the 90th and 95th percentile level.

Since underwriting risk is a dominant factor in both RBC and working surplus targets, we examined the outcome of our model against historical results. Below we discuss our retrospective analysis which analyzes surplus needs of other Blue plans since 1992.

One would assume that prospective actuarial model, having properly reflected GHMSI business dynamics, would produce outcomes that are explainable in terms of historical results.

Model results which are consistent with prior industry experience tend to validate the general reasonability of the modeling exercise. The model produces outcomes which reflect a loss cycle of approximately 11% of revenue at the 90th percentile of all outcomes, and 15% of revenue at the 95th percentile, which is similar to the results we obtained when we analyzed other Blue plans' experience. The loss cycles exhibited by GHMSI since 1980 are shown in the table below², and show that GHMSI has historically had more severe loss cycles than we attained at our percentiles.

	Cumulative Loss Cycles		
	1980 - 1982	1986 - 1988	1992 - 1995
GHMSI Plus Subsidiaries	-12.5%	-44.5%	-23.6%

The specific historical loss cycles experienced by GHMSI since 1980 include two cycles that are more severe than we have recommended in our working surplus target range. The working range will not cover every conceivable threat to GHMSI's solvency, which is why it is imperative for GHMSI to be able to react to a fall in surplus and to try to maintain surplus toward the middle of the working range. The model variables and mechanics were designed independently of GHMSI's historical cycle data, and we believe that this model provides a less biased range than relying on GHMSI's historical loss cycles.

Credit and Asset Risk

Investment decisions are implemented by Management as directed by the CareFirst and Affiliates Board's approved Investment Policy, which is also used for other CareFirst entities. CareFirst's Corporate Investment Portfolio contains a significant investment in fixed income vehicles (e.g., investment grade bonds) and the balance in equities, convertibles, and cash-or-cash equivalents. While not subject to the risk of "matching" against benefit obligations as in life insurance products, GHMSI surplus levels will be impacted by a change in asset rates of return based on the market values of the invested assets. We have considered the potential impact of interest rate changes on assets and surplus generation when setting our targeted working surplus.

For purposes of this analysis, we have not included specific credit or cost of capital impacts as a modeling issue. However, we have included their potential impact as a factor when choosing an appropriate level of confidence in our targeted working surplus.

Business Risk

Some catastrophic and related business risks are reflected in the medical expense projections discussed above. Other risks, such as litigation and business changes can again be considered to be low probability / high cost incidents. As such, they are best reflected by using conservatism when finalizing targets in terms of confidence ranges.

² Information received from CareFirst.

Capital Expenditure and Planned Business Changes

We have not included any specific planned business or capital expenditures directly in our model. While not fully known at this point in time, the nature of ACA and other anticipated regulatory and business model changes will force GHMSI to call upon accumulated surplus to react to changing business environments.

- As an example, all Payers can anticipate near-term expenditures related to required adoption of the ICD10 claims payment standards. This change requires not only systems changes, but impacts pricing analysis, provider contracting, and care management functions.
- ACA will undoubtedly change the nature of how insurance products are both sold and serviced as plans attempt to achieve the targeted goals of broader coverage and more efficient administration.

It is still early for GHMSI to estimate these costs. There will undoubtedly be other situations as a response to changing markets and regulations evolve. We therefore did not attempt to develop specific scenarios. However, such changes cannot be priced into ongoing premium rates. This is particularly true now that administrative costs are restricted by minimum loss ratio constraints. Therefore, these must be funded from accumulated surplus. We would therefore advocate conservatism in surplus targets to recognize the need for surplus to fund these contingencies.

CareFirst Community Giving

We included provision for the required market subsidization in Washington, DC and Maryland. The Maryland subsidization is in lieu of a two percent premium tax, and the Washington, DC subsidization is on top of existing premium taxes.

Model Results

We established a working surplus range for GHMSI's management to consider based on the above stochastic model, the results of historical observations of GHMSI results, and a broad general reasonability comparison against other carriers. This range reflects the requirements for underwriting losses from our stochastic model, the probability of other risk-related surplus requirements, and the need for surplus as a funding vehicle for vitality and other market-demand expenditures.

RBC targets traditionally focus on a minimum surplus known as the ACL. Since we are attempting to develop "working surplus", our focus is a minimal level which:

- Prevents GHMSI from dropping below 375% of ACL as required for normal operations under the BCBSA trademark agreement 90% of the time;
- Prevents GHMSI from dropping below 200% of ACL as required for normal operations by most state insurance regulators following NAIC guidelines and retention of BCBSA trademark 95% of the time;
- Provides a reasonably high degree of likelihood that GHMSI can sustain anticipated underwriting losses;

- Provides for business, asset, and other risks in addition to the potential drain of underwriting losses; and
- Offers some residual surplus to fund capital expenditures, required new business ventures, and overall GHMSI mission statement obligations.

As discussed above, the stochastic modeling exercises allow us to develop a range that provides both a “low” to “high” level of certainty that surplus will be adequate. These depend upon the items to be included as surplus concerns and the probability of outcomes in the surplus model. Observations of most health care insurers suggest that surplus levels can be quite volatile.

In general, we believe that below the 90th-percentile level is too low to be adequately certain that potential events over a long-term period will not create problems with working surplus levels – or even solvency surplus levels. Conversely, the dollar requirements increase dramatically as one seeks to become more and more certain that all contingencies have been covered. It is likely to be theoretically impossible to have sufficient surplus to be 100% certain that events will not cause the level to be below a chosen target range.

We have therefore chosen to establish a recommended range which approximates something between a 90% and 95% likelihood of surplus adequacy based on our models and on other surplus requirements. A higher level helps offset the risk of the low probability / high risk events, which are very difficult to reflect in stochastic modeling. This level is also consistent with our observations of GHMSI historical results and the level of surplus being held by other BCBS plans. We believe that these levels of confidence are prudent since the loss of solvency would be a devastating event for the community served by GHMSI. It would seem questionable to have a 10% likelihood of the failure of a plan with the associated wholesale dislocations in service to members, disruptions in provider reimbursement, and loss of continuity of courses of treatment. We note that the NAIC reports that 94% of insurers required no statutory action in 2009³, therefore we believe that our confidence intervals of 90% and 95% are not overly cautious.

As one would suspect from the above development discussion, we believe this is a management decision which is clearly not quantifiable in absolute terms. The choice of a working surplus range should be based on management’s comfort level with the uncertainties of the current business environment and with the knowledge of likely non-risk-related demands on surplus for capital investment and other expenditures.

³ NAIC Staff, “Health Industry RBC Results for 2009,” 2010 National Association of Insurance Commissioners.

We have quantified these outcomes using several of the metrics we have seen applied at GHMSI and elsewhere. All of our observations are in terms of statutory financial reporting, since this provides the best common metric between carriers and in terms of ongoing monitoring.

GHMSI's Working Surplus Range	Low	High
% of RBC Level	1,000%	1,550%

Overall, this GHMSI working surplus range appears to offer a reasonable level of certainty of surplus sufficiency while addressing capital needs and other uses of surplus.

Conclusion

Analysis of working surplus in the current market environment must accommodate ACA changes and the greater inherent variability they create in financial outcomes and working surplus needs. Our analysis employed microeconomic simulation modeling which accounts for variability in likely market/product mix outcomes. The model then examines the statistical variability of pricing mechanisms against these outcomes in terms of our historical surplus modeling considerations. Based on our modeling, we created a projection of GHMSI's specific business conditions as best as can be determined on a prospective basis. We conclude that an appropriate range of working surplus for GHMSI to hold is 1,000% - 1,550% of the ACL. Our modeling indicates that GHMSI is currently holding an appropriate amount of working surplus.

The working surplus range of 1,000% - 1,550% of ACL represents the appropriate way of looking at GHMSI's long-term surplus needs. These needs clearly exceed the minimum surplus levels defined by RBC calculations. In fact, the process of setting such a range differs sufficiently from RBC calculations that working surplus ranges cannot be developed simply by using a multiplier of the RBC level. However, for the sake of comparison, we have adopted the common practice of expressing an independently developed working surplus range as a percentage of the RBC level.

Our process has attempted to reflect business factors which are common to the industry and those which are unique to GHMSI. The objective of this range is to provide confidence that GHMSI can remain above the 375% of RBC target set by BCBSA for unencumbered operations as a holder of the BCBS trademark with reasonable (90%) certainty, and remain above the 200% of RBC set by regulators with more (95%) certainty.

We are, however, concerned that merely modeling a range of working surplus requirements does not fully explore the issues faced by GHMSI. As articulated in our report, the changes introduced by ACA and other market dynamics take us to a different place in terms of understanding working surplus needs. While we have applied our historical RBC modeling tools, we have done so in a context which applies the analysis to multiple scenarios for the future state in which GHMSI may operate. We believe we have provided a reasonably analytical basis of determining working surplus needs for those future states.