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December 2009



Long-Term Care Insurance Valuation

An Industry Survey of Assumptions and Methodologies





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I. OVERVIEW

Milliman has conducted its third triennial survey of Long-Term Care (LTC) insurance carriers in the individual and group market. We compiled survey responses from 24 individual carriers and four group carriers. In cases where a given carrier offered both product lines, we gathered the responses for its individual products on an independent basis from its group products. This survey is a follow-up from the surveys completed in 2003 and 2006. Many of the survey questions remain consistent with the previous surveys. This allows for comparisons of the change in responses over time. In addition, several new questions were added for 2009, including a section on asset mix and investments.

The objectives of this survey are to review and document the assumptions and methodologies related to the determination of active life and disabled life reserves, as well as the asset strategies and investments backing the reserves.

The information presented includes brief commentary on the application of various methods and approaches of several technical LTC valuation issues. This report assumes that the reader is familiar with LTC insurance, including product design and benefits, as well as current valuation standards.

The results of this survey are intended to provide interested parties with general benchmarks regarding insurers' current valuation assumptions. However, the survey is merely a tally of valuation assumptions, not necessarily a carrier's actual experience. In many cases, companies attempt to keep their valuation assumptions and experience consistent; however, this may not always be practical. The reader should keep this in mind when evaluating the results in this report.

The results of this survey are intended to provide interested parties with general benchmarks regarding insurers' current valuation assumptions.

This survey included questions with regard to GAAP, statutory (STAT), and tax (TAX) reserve bases. Some companies do not hold GAAP reserves because of their financial structure. Therefore, GAAP results are presented only for 14 individual and four group carriers.

All responses are related to a carrier's most recently issued LTC product series. In most cases, this relates to 2009 issues; however, a few carriers that have ceased operations in the recent past are also included in the survey. In order to avoid distortions from valuation assumptions used for policies issued many years ago, the Active Life Reserve section of this survey includes only companies that are currently selling new business. The Disabled Life Reserve section includes all companies. It should also be noted that not all companies answered every question, resulting in the number of responses varying by table.

The carriers included in the survey are listed in Appendix A.

Finally, commentary offered throughout this report includes the authors' opinions and do not necessarily represent those of Milliman. Because the articles and commentary prepared by the professionals of our firm are often general in nature, we recommend that our readers seek the advice of an actuary or attorney before taking action.

Active life reserves (ALR) are designed to reserve for future claim events, and are typically the largest reserve held by LTC insurance companies.

II. ACTIVE LIFE RESERVES

Active life reserves (ALR) are designed to reserve for future claim events, and are typically the largest reserve held by LTC insurance companies. Active life reserves, contract reserves, and policy reserves are assumed to be synonymous in this report. The survey included questions on assumptions and methodologies relating to a company's most recently issued policies. In order to avoid distortions from valuation assumptions used for policies issued many years ago, the ALR section of this survey includes only companies that are currently selling new business. Topics covered relating to active life reserves include:

- Mortality
- Ultimate lapse rates
- Morbidity
 - Morbidity sources
 - Provision for adverse deviation
 - Morbidity improvement
- Methodology and other issues
 - Provision for loss adjustment expense
 - Interest rate
 - Waiver of premium methodology
 - Active life reserves for disabled lives
 - Reserving for rate increases
 - Adequacy
 - System
 - Reserving approach for complex riders
 - Principles-based reserves
 - Premium reserves

MORTALITY

For current issues, the 1994 Group Annuity Mortality (GAM) is the most common assumption used throughout the industry for calculating STAT and TAX active life reserves because it is the table referenced for LTC insurance in the current version of the National Association of Insurance Commissioners (NAIC) Health Insurance Reserves Model Regulation, which many states have adopted (in part or in its entirety). Our survey indicates that all individual companies we contacted use 1994 GAM for STAT active life reserves and 19 of 20 companies use the 1994 GAM for TAX active life reserves. For GAAP reserves, most companies use mortality tables consistent with their STAT and TAX assumptions, although some companies use the 2000 Annuity Table or modify the mortality assumptions based on their insured experience.

In addition, a few companies indicated adjustments for selection factors and projection scales in their mortality assumption.

Because the Model Regulation specifies the 1994 GAM for policies issued after Jan. 1, 2005, there has been little change in mortality assumptions since our 2006 survey, which also indicated that most companies used the 1994 GAM table.

Our survey indicates that all individual companies we contacted use 1994 GAM for STAT active life reserves and 19 of 20 companies use the 1994 GAM for TAX active life reserves.

FIGURE 1: MORTALITY

INDIVIDUAL COMPANIES			
MORTALITY TABLE ASSUMPTION	STAT	TAX	GAAP*
1983 GAM	0	1	1
1994 GAM	20	19	9
2000 ANNUITY	0	0	3
INSURED EXPERIENCE	0	0	1
GROUP COMPANIES			
MORTALITY TABLE ASSUMPTION	STAT	TAX	GAAP
1983 GAM	0	0	1
1994 GAM	4	4	3
2000 ANNUITY	0	0	0

* Note: Some companies do not hold GAAP reserves.

The mortality tables mentioned in Figure 1 are often used by companies for the aggregate total of all deaths, whether an insured is active or disabled. In many reserve models, the only way policyholders are actually “removed” from active life reserve calculations is via the mortality and lapse assumption used in the development of projected lives. As the mix of active and disabled policyholders changes over time, total mortality will also change. This shift in the mix of policyholders can be modeled using different approaches. Also, as lapse assumptions have decreased over time, the mortality assumption has become a larger proportion of the total termination rates.

ULTIMATE LAPSE RATES

A summary of ultimate lapse rates assumed by insurers in their active life reserve calculations is shown in Figure 2. Please note that survey respondents were asked to provide the STAT and TAX lapse rates prior to any NAIC limiting formulas. A number of companies indicated that they vary their lapse assumptions by age, marital status, inflation, and premium payment option, while other companies indicated use of only a single set of lapse assumptions. In order to consistently compare lapse assumptions, we requested the ultimate lapse rate for the following plan and demographic characteristics:

- Issue age 65
- Female
- Married
- 5% compound inflation protection
- Five-year benefit period

Compared to our 2006 survey, ultimate lapse rates have generally trended downward; our 2006 survey also indicated a downward trend from the 2003 survey.

Compared to our 2006 survey, ultimate lapse rates have generally trended downward; our 2006 survey also indicated a downward trend from the 2003 survey. The majority of companies in the 2006 survey (14 of 22) indicated ultimate lapse rates in the 1% - 2% range. The 2009 survey indicates that a majority of companies (11 of 19) are in the 0.5% - 1% range, with the average being 1.2%. (The direct comparison to previous surveys may be exaggerated because the cell from the 2009 survey has changed to better reflect a more commonly sold plan. The cell from the 2009 survey includes 5% compound inflation protection for a married individual, whereas the 2006 cell excluded inflation protection.)

FIGURE 2: ULTIMATE LAPSE RATE ASSUMPTION

INDIVIDUAL COMPANIES			
ULTIMATE LAPSE RATES	STAT	TAX	GAAP*
0% - 0.5%	0	1	1
0.51% - 1.0%	12	12	8
1.01% - 1.5%	5	4	4
1.51% - 2.0%	2	2	0
2.01%+	0	0	0
GROUP COMPANIES			
ULTIMATE LAPSE RATES	STAT	TAX	GAAP
0% - 0.5%	0	1	0
0.51% - 1.0%	3	2	3
1.01% - 1.5%	0	0	1
1.51% - 2.0%	0	0	0
2.01%+	1	1	0

* Note: Some companies do not hold GAAP reserves.

MORBIDITY

Morbidity is one of the most subjective assumptions included in the calculation of active life reserves because of the lack of a standardized industry table. The magnitude, and more importantly the slope, of the age-cost curve can have a dramatic impact on the durational development of LTC active life reserves. When surveying companies regarding their morbidity assumptions, we asked for three pieces of information:

- Morbidity sources
- Provision for adverse deviations (PAD)
- Morbidity improvement

Morbidity Sources

Because of confidentiality concerns, we did not ask each company for a sample of its claim cost assumptions. Instead, we simply asked companies for the source of the claim cost assumptions that are used in the development of their active life reserves. The results are summarized in Figure 3. None of the companies use population-based data sources as the primary data sources for their morbidity assumptions. As with previous surveys, the source of the assumptions is nearly split between a company's own data and that of a consultant or reinsurer. A number of companies use a combination of their own data and data from an outside source.

As with previous surveys, the source of the assumptions is nearly split between a company's own data and that of a consultant or reinsurer.

FIGURE 3: SOURCE OF MORBIDITY ASSUMPTION

MORBIDITY SOURCES	NUMBER OF INDIVIDUAL COMPANIES*
COMPANY DATA	14
CONSULTANT / REINSURER	9

MORBIDITY SOURCES	NUMBER OF GROUP COMPANIES*
COMPANY DATA	2
CONSULTANT / REINSURER	2

* Note: Some companies use more than one basis to arrive at morbidity estimates.

Based on our survey, we found that the use of morbidity provisions for adverse deviation (PADs) varies widely, although many companies omit them altogether.

Provision for Adverse Deviation

Based on our survey, we found that the use of morbidity provisions for adverse deviation (PADs) varies widely, although many companies omit them altogether. The survey results are in Figure 4.

FIGURE 4: MORBIDITY PROVISION FOR ADVERSE DEVIATION (PAD)

MORBIDITY PAD (AS % OF INCURRED CLAIMS ESTIMATE)	NUMBER OF INDIVIDUAL COMPANIES		
	STAT	TAX	GAAP*
0%	10	10	5
1% - 5%	8	8	6
6% - 10%	1	1	2
11%+	1	1	1

MORBIDITY PAD (AS % OF INCURRED CLAIMS ESTIMATE)	NUMBER OF GROUP COMPANIES		
	STAT	TAX	GAAP
0%	3	3	1
1% - 5%	0	0	1
6% - 10%	1	1	2
11%+	0	0	0

* Note: Some companies do not hold GAAP reserves.

While not readily apparent from Figure 4, some companies that omit a PAD in their STAT and TAX reserves choose to include a PAD in their GAAP reserves. This is typically done because the STAT reserves are believed to include additional conservatism as a result of the statutory interest rate requirement. GAAP reserves may not include this implicit margin so a morbidity PAD is included (although one company indicated that the only explicit PAD to its GAAP reserves is a lower discount rate).

On the whole, the level of PAD has remained consistent over the past surveys.

Morbidity Improvement

A controversial topic that is difficult to measure in the LTC insurance industry is the emergence and future projection of morbidity improvement. The NAIC Model Regulation prohibits the use of morbidity improvement in the calculation of statutory active life reserves. A summary of the survey results with respect to the use of future morbidity improvement assumptions is included in Figure 5. The results are consistent with the 2006 survey, which also showed no one using future improvement for statutory reserves, but some companies using it for TAX and GAAP. The 2003 survey, which was prior to the NAIC Model Regulation prohibiting its use, did show some companies using morbidity improvement for statutory reserves.

Two companies use future improvement assumptions for their statutory asset adequacy testing. Six companies use future morbidity improvement for GAAP reserve testing (four of those companies use it in their base valuation assumptions).

FIGURE 5: FUTURE MORBIDITY IMPROVEMENT

INDIVIDUAL COMPANIES			
USE FUTURE MORBIDITY IMPROVEMENT	STAT	TAX	GAAP*
NO	20	17	10
YES	0	3	4
GROUP COMPANIES			
USE FUTURE MORBIDITY IMPROVEMENT	STAT	TAX	GAAP
NO	4	4	4
YES	0	0	0

* Note: Some companies do not hold GAAP reserves or do not value their business on a best estimate basis internally.

PROVISION FOR LOSS ADJUSTMENT EXPENSE

Survey respondents were asked what provision for loss adjustment expense (LAE) is made, if any, in their active life reserve calculations. Figure 6 includes a summary of the LAE loads, as a percent of the active life reserves.

FIGURE 6: PROVISION FOR LOSS ADJUSTMENT EXPENSE (LAE)

INDIVIDUAL COMPANIES			
LAE AS % OF ACTIVE LIFE RESERVES	STAT	TAX	GAAP*
0%	13	13	4
0.1% - 2.5%	1	1	3
2.6% - 5.0%	3	3	4
> 5.0%	2	2	3
GROUP COMPANIES			
LAE AS % OF ACTIVE LIFE RESERVES	STAT	TAX	GAAP
0%	2	3	0
0.1% - 2.5%	1	0	1
2.6% - 5.0%	0	0	1
> 5.0%	1	1	2

* Note: Some companies do not hold GAAP reserves.

Most companies omit explicit provisions for LAE in their STAT and TAX active life reserve bases. This is done because many companies believe statutory accounting principles only require LAE reserves in the disabled life reserve calculations. However, many companies implicitly reflect LAE in their reserve calculations through loss recognition testing and gross premium valuations in which all reserves are compared with future benefit and expense payouts relative to premium income. As long as reserves are able to withstand such tests, many companies do not believe any additional increases to reserves are necessary.

Because of GAAP reserving requirements, and because GAAP reserves are typically developed with best estimate assumptions and modest PADs, most companies include more explicit LAE assumptions in the GAAP active life reserve development. GAAP LAE is typically reflected via a load to the benefit reserves or a reduction to deferred acquisition cost (DAC).

Most companies omit explicit provisions for LAE in their STAT and TAX active life reserve bases.

INTEREST RATE

From a STAT and TAX perspective, most companies surveyed used the prescribed interest rate. As GAAP interest rates vary by company, a summary of GAAP interest rate assumptions is shown in Figure 7.

FIGURE 7: GAAP INTEREST RATE	
GAAP INTEREST RATE	NUMBER OF INDIVIDUAL COMPANIES*
≤ 5.0%	4
5.01% - 5.5%	3
5.51% - 6.0%	3
> 6.0%	3
GAAP INTEREST RATE	NUMBER OF GROUP COMPANIES
≤ 5.0%	0
5.01% - 5.5%	1
5.51% - 6.0%	1
> 6.0%	1

* Note: Some companies do not hold GAAP reserves.

The average GAAP interest rate was 5.5%. Overall, there has been a downward trend in interest rates compared to our 2003 and 2006 surveys.

The average GAAP interest rate was 5.5%. Overall, there has been a downward trend in interest rates compared to our 2003 and 2006 surveys. The average interest rate in those surveys was 6.2% and 5.8%, respectively.

WAIVER OF PREMIUM METHODOLOGY

All companies we surveyed reflect waiver of premium costs in their active life reserve calculations. Two methods are predominantly used to adjust the liabilities for this cost. The first method, used by most companies (17 of 20), increases benefit payments in the reserve calculation to reflect the cost associated with the waiver. The second approach (used by three of 20 companies) uses a methodology to develop active life reserves assuming that only active policyholders (versus both active and disabled policyholders) pay premiums.

ACTIVE LIFE RESERVE FOR DISABLED LIVES

All companies surveyed held active life reserves for those on claim.

RESERVING FOR RATE INCREASE

Companies were asked if they change reserves following a rate increase. Almost all of the companies (19 of 20) indicated that any rate increase was only considered in asset adequacy testing and reserve changes occurred only if required by the gross premium valuation. Only one company responded that, for statutory reserves, it does change reserves by computing a new net premium from issue. On the GAAP side, all companies indicated that the reserves would not change as the SEC has come out with a ruling against unlocking the reserves for rate increases on LTC.

ADEQUACY

Figure 8 shows the results of active life reserve adequacy testing. The responses were categorized into those companies that only conduct a gross premium valuation (GPV) versus those that conduct some form of cash flow (CF) testing, which includes asset modeling and may include testing stochastic interest rate scenarios.

FIGURE 8: ALR ADEQUACY TESTING

METHOD	NUMBER OF INDIVIDUAL COMPANIES
GPV ONLY	4
CF TESTING	16

METHOD	NUMBER OF GROUP COMPANIES
GPV ONLY	0
CF TESTING	4

In addition, eight of 16 individual companies that do CF testing responded that part of the model used for adequacy testing was stochastic. Also, almost every company indicated that they update their assumptions annually, with only two of 20 companies indicating that the update occurs every other year.

SYSTEM

Figure 9 shows the number of companies that use a commercial valuation system for their active life reserves versus those that have “homegrown” systems. Several companies did transition from using a homegrown system to a commercial system since the last survey.

FIGURE 9: ALR SYSTEM

SYSTEM	NUMBER OF INDIVIDUAL COMPANIES
HOMEGROWN	8
COMMERCIAL	12

SYSTEM	NUMBER OF GROUP COMPANIES
HOMEGROWN	0
COMMERCIAL	4

RESERVING APPROACH FOR COMPLEX RIDERS

Modeling for some riders for LTC can be quite complex. Perhaps the two most difficult to model are the shortened benefit period (SBP) or non-forfeiture rider and the shared care rider. Both riders require considerable formula changes to a typical valuation system. New to the survey this year were two questions relating to how companies model these riders. Of the 18 companies that answered the non-forfeiture question, 14 said they followed a simple approach of increasing the reserve by the premium differential. The other four companies indicated that they followed a complex calculation of the benefits. In our experience most companies hold a “paid up” reserve for those who lapse their policies with the non-forfeiture rider, although we did not specifically ask about this in the survey. A similar response was given for the shared care rider; 10 of the 13 companies that responded (some indicated that they did not offer that benefit) said they followed a simple approach of increasing the reserve by the premium differential, while the other three followed a complex model.

PRINCIPLES-BASED RESERVES

Principles-based reserves, or more broadly, a “principles-based approach” (PBA), is an effort to create a new framework for reserves and capital requirements for U.S. life insurers. The American Academy of Actuaries (Academy), particularly within the Life and Health Practice Councils, has several work groups dedicated to this charge and has been working closely with the NAIC and the industry to bring the project to fruition. The life insurance and annuity product lines have been leading the charge on PBA.

However, PBA is expected to eventually include health and LTC. The Academy’s LTC Principles-based (LTCPB) Work Group is monitoring and responding to regulatory developments with respect to reserve regulations, with a goal of ensuring that any changes made include reasonable accommodations for LTC products. Key discussions and issues addressed by the work group to date include:

1. Discussion on stochastic review.

The LTCPB group has discussed which variables should be reviewed stochastically for LTC. In contrast to life products, many of the LTC liability assumptions, including morbidity and mortality, should be analyzed stochastically. The life / annuity work to date applies stochastic modeling to interest rates and equity returns only. Different approaches to developing an LTC model that handles liability assumptions on a stochastic basis have been analyzed.

2. Addressing potential premium rate increases.

The LTCPB group has decided to address the potential for including future premium rate increases in the modeling of future LTC cash flow. Determining what premium rate increase levels, if any, should be reflected in PBA will require significant modeling analysis and open discussions with all interested parties, including the NAIC.

3. The need for a standardized morbidity table.

Currently, LTC insurance does not have a standardized morbidity table. Such a table may prove to be important as movement is made toward developing appropriate benchmarks. It would also be vital in providing a baseline for companies that do not have credible experience to develop their own assumptions.

The potential implications of a PBA for LTC are far-reaching. It will not only influence reserves, but also product development, pricing, and strategic decisions.

The potential implications of a PBA for LTC are far-reaching. It will not only influence reserves, but also product development, pricing, and strategic decisions.

This valuation survey indicates that all companies are monitoring results and proceedings with respect to PBA. One company indicated that it had started to develop its own stochastic model to test the impact of a stochastic approach to reserving.

PREMIUM RESERVES

Premium reserves were largely ignored in our analysis because the calculations and methodologies used in the determination of premium reserves tend to be fairly consistent across the industry. The one question included in the survey asked whether the STAT unearned premium reserve was held on a gross or net basis (net valuation premium). The NAIC Health Insurance Reserve Model Regulation states that the sum of the unearned premium reserve and active life reserve cannot be less than the gross unearned premium reserve. Therefore, after the first couple policy durations, companies can hold the net unearned premium reserve.

FIGURE 10: STAT PREMIUM RESERVE METHODOLOGY

METHODOLOGY	NUMBER OF INDIVIDUAL COMPANIES
GROSS	8
NET	16

III. DISABLED LIFE RESERVES

As LTC blocks of business age, the disabled life reserves (DLR) become more significant. DLR calculations can include many nuances and complications and generally are revised to reflect emerging experience more readily than ALRs.

This section includes responses from all companies, including those no longer selling LTC insurance.

Participating companies were surveyed with regard to the following topics:

- Continuance tables and related reserve methodologies
 - Data sources
 - Continuance table variables
 - Future transfer methodology
 - Waiver of premium methodology
 - Salvage adjustments
- Explicit provision for adverse deviation
- Provision for loss adjustment expense
- Incurred but not reported (IBNR) methodology
- Adequacy
- System
- Reserving approach for complex riders
- Claim status definitions and adjustments

CONTINUANCE TABLES AND RELATED RESERVE METHODOLOGIES

Most companies surveyed (22 of 24) follow a continuance table approach when establishing the claim reserve for known claims.

Most companies surveyed (22 of 24) follow a continuance table approach when establishing the claim reserve for known claims. One company establishes the reserves based on claim examiner's estimations using the care setting and diagnosis. Another company used completion factors with some adjustments to establish the entire claim reserve.

Data Sources

Figure 11 shows the source of the continuance table assumptions. The most common source is the company's own insured data followed by data from consultants and reinsurers. Some companies indicated that they used a combination of both sources. Insured data can be fairly credible during the early claim durations; however, it is more difficult to develop credible estimates for the late claim durations because of the sparse amount of data available.

The majority of companies (18 of 24) indicate that they update the continuance tables less often than annually. The remainder responded that they perform an update annually.

The most common source is the company's own insured data followed by data from consultants and reinsurers.

FIGURE 11: CONTINUANCE TABLE DATA SOURCES

DATA SOURCE	NUMBER OF INDIVIDUAL COMPANIES*
MORTALITY TABLE	0
POPULATION DATA	5
INSURED DATA	12
CLAIMS DEPT. EST.	1
CONSULTANT	8

DATA SOURCE	NUMBER OF GROUP COMPANIES
MORTALITY TABLE	0
POPULATION DATA	1
INSURED DATA	1
CLAIMS DEPT. EST.	0
CONSULTANT	2

*Some companies use more than one basis to develop continuance assumptions.

Continuance Table Variables

Figure 12 shows the primary variables used in the continuance tables. Compared to the 2006 survey, companies are now using more variables in their DLR calculations. This may indicate that companies are developing more sophisticated and detailed assumptions as they try to develop better claim reserve estimates.

Compared to the 2006 survey, companies are now using more variables in their DLR calculations.

FIGURE 12: CONTINUANCE TABLE VARIABLES

VARIABLE	NUMBER OF INDIVIDUAL COMPANIES (OUT OF 22 RESPONSES)
AGE	21
GENDER	17
CARE SETTING	15
BENEFIT PERIOD	8
DIAGNOSIS	4

The majority of companies either implicitly build transfers in or do not account for them.

Future Transfer Methodology

Figure 13 shows the approach taken in reflecting transfers between care settings for comprehensive plans (plans that cover care in both a facility and at home). The majority of companies either implicitly build transfers in or do not account for them. Only three companies apply an explicit factor to account for possible future claim transfers.

FIGURE 13: FUTURE TRANSFER METHODOLOGY

METHODOLOGY	NUMBER OF INDIVIDUAL COMPANIES
TRANSFERS NOT REFLECTED	16
EXPLICIT ADJUSTMENT	3
IMPLICIT ADJUSTMENT	3

METHODOLOGY	NUMBER OF GROUP COMPANIES
TRANSFERS NOT REFLECTED	2
EXPLICIT ADJUSTMENT	1
IMPLICIT ADJUSTMENT	1

To demonstrate the care setting transfer issue, consider the following example. A carrier may offer home care-only policies as well as comprehensive policies. Some carriers hold an identical reserve if a policyholder goes on claim while receiving home care under the two different policy types. If the underlying continuance tables are based solely on home care experience, this methodology can potentially understate the comprehensive liability because the claimant will continue to be benefit-eligible even if transferred to a facility. Of course, carriers who employ a similar methodology to nursing home claimants (with a comprehensive policy) may be overestimating the comprehensive claimant's liability because home care is typically less expensive and recovery is often more likely. The materiality of these transferences depends on how the underlying continuance curves are constructed.

The survey responses classified as "explicit" refer to companies that make an explicit adjustment with respect to transfers. As an example of an explicit adjustment for transfers of care, a company might adjust all comprehensive facility DLR by X% and adjust all comprehensive non-facility DLR by Y%.

The companies with "implicit adjustments" take an approach in which the underlying continuance tables are developed from comprehensive policies. These companies assume the transfers are then implicitly reflected in the DLR calculation because any historical transfer experience is reflected in the claim runoff assumed. While this may be true if the mix of nursing home and home care of future claim experience remains identical to past experience, an explicit methodology is able to withstand more dynamic changes in the distribution of future claimants.

Some carriers define a transfer of care as a "new" claim and, therefore, do not adjust their claim liability when setting up comprehensive plan claim reserves. This may be appropriate if such practice is consistent with the development of the active life reserves. In addition, it should be noted that the transferred case should most likely be placed onto the continuance curve at the transferred duration, rather than at duration zero, to recognize the longevity of the claim.

Milliman conducted research on claim transfers for the Society of Actuaries and the ILTCI Conference Association and released a research report in January 2009. The report analyzed the overall frequency of transfers between claim settings and the rate of transfer by claim duration. The report can be found on the Society of Actuaries' Web site (<http://www.soa.org/research/life/research-transfer-rates-ltc.aspx>).

Waiver of Premium Methodology

The majority of companies reflect waiver of premium benefits in their claim reserve calculations, as seen in Figure 14. This is a shift from the prior surveys, when eight of the 22 individual carriers did not hold a claim reserve for waiver of premium benefits. Although now uncommon, the NAIC appears to allow companies to omit disabled life reserve calculations for waiver of premium benefits depending on the nature of a company's active life reserve calculation. Specifically, if active life reserves reflect waiver of premium benefits by only reflecting premium payments from active policyholders (versus both active and disabled policyholders), then the NAIC Health Reserve Model Regulation language appears to allow carriers to ignore waiver of premium claim reserves. However, if carriers increase claim costs (without adjusting the premium stream) to reflect waiver of premium benefits, then the NAIC appears to require disabled life reserves for waiver of premium.

The majority of companies reflect waiver of premium benefits in their claim reserve calculations. This is a shift from the prior surveys, when eight of the 22 individual carriers did not hold a claim reserve for waiver of premium benefits.

FIGURE 14: WAIVER OF PREMIUM METHODOLOGY

METHODOLOGY	NUMBER OF INDIVIDUAL COMPANIES
WAIVER REFLECTED IN DLR	20
WAIVER NOT REFLECTED IN DLR	3

METHODOLOGY	NUMBER OF GROUP COMPANIES
WAIVER REFLECTED IN DLR	4
WAIVER NOT REFLECTED IN DLR	0

Salvage Adjustments

As shown in Figure 15, several companies make explicit "salvage" adjustments in their claim reserve calculations. These calculations account for paid claim experience that is less than the maximum daily, weekly, or monthly amount specified in the policy contract. For example, a policy with a maximum benefit of \$100 per day may reimburse actual costs of only \$80 per day for home care services. Salvage adjustments also generally account for actual services that are rendered less than seven days a week. (While not addressed with all survey participants, for those companies that responded "none," it is our experience that they do not make an explicit salvage adjustment, but do commonly account for services that are rendered less than seven days a week in their reserve calculation.)

Salvage adjustments may be determined on a seriatim or aggregate basis. Each approach has its own merits when considering variability, credibility, and calculation issues.

FIGURE 15: SALVAGE METHODOLOGY

METHODOLOGY	NUMBER OF INDIVIDUAL COMPANIES
NONE	13
SERIATIM	4
AGGREGATE	5

METHODOLOGY	NUMBER OF GROUP COMPANIES
NONE	1
SERIATIM	0
AGGREGATE	3

EXPLICIT PROVISION FOR ADVERSE DEVIATION

Most companies do not include explicit provisions for adverse deviation (PAD) in the DLR calculation. The survey results are contained in Figure 16.

FIGURE 16: STATUTORY RESERVE PAD

PAD AS % OF DLR	NUMBER OF INDIVIDUAL COMPANIES
0%	18
1% - 5%	5
6% - 10%	1

PAD AS % OF DLR	NUMBER OF GROUP COMPANIES
0%	3
1% - 5%	1

While a majority of companies do not include a PAD, there is an increasing trend toward holding a PAD relative to our 2006 survey.

While a majority of companies do not include a PAD, there is an increasing trend toward holding a PAD relative to our 2006 survey. Three of 22 companies from the 2006 survey had some PADs, whereas six of 24 from the 2009 survey included some PADs.

Survey results also indicated that the PAD on a TAX basis was equal to the STAT basis. In addition, GAAP was equivalent to STAT, except for two companies, which used lower GAAP PADs.

Some companies that did not hold a PAD cited the statutory interest rate as the primary reason. On the other hand, others viewed the interest rate as a source of potential deficiency because DLR is supported by short-term investments rather than Long-Term. Those companies simply felt margins were sufficient in other reserves (contract, etc.) such that their LTC reserves were sufficient on an aggregate basis.

PROVISION FOR LOSS ADJUSTMENT EXPENSE

We surveyed the participating carriers with regard to the provisions for loss adjustment expense (LAE) that are included in their claim reserve calculations. Most companies include a flat percentage load to their DLR and IBNR so we presented the survey results in a similar manner. For companies that use a different methodology (percent of premium, etc.), we simply estimated the LAE load as a percent of the claim reserve. The range of the LAE load varies by company as shown in Figure 17.

FIGURE 17: LOSS ADJUSTMENT EXPENSE (LAE) PERCENTAGE

INDIVIDUAL COMPANIES			
LAE (AS % OF DLR AND IBNR)	STAT	TAX	GAAP*
0%	2	4	2
0.1% - 2.5%	7	6	3
2.6% - 5.0%	9	6	9
> 5.0%	3	3	2
GROUP COMPANIES			
LAE (AS % OF DLR AND IBNR)	STAT	TAX	GAAP
0%	0	0	0
0.1% - 2.5%	0	0	0
2.6% - 5.0%	2	2	2
> 5.0%	1	1	1

* Note: Some companies do not hold GAAP reserves.

Average LAE held on a STAT basis is 3.3%. Unlike ALR reserves where most companies only load GAAP ALR reserves for the LAE liability, most companies load all three DLR bases (STAT, TAX, and GAAP) for LAE.

Some companies indicated that they use a lower LAE load to GAAP DLR than they use for GAAP ALR. The idea is that the LAE is heavily loaded at the beginning of a claim when plans of care are developed and administered. Therefore, prior to claim, the entire LAE should be recognized in the ALR calculation. However, after a claim is underway, the LAE as a percent of the DLR drops considerably because the maintenance of a claim is more routine.

Some companies indicated that they use a lower LAE load to GAAP DLR than they use for GAAP ALR.

INCURRED BUT NOT REPORTED (IBNR) METHODOLOGY

One of the more common approaches is to use a completion method (or claim triangle approach) to estimate the number of IBNR claims.

The table in Figure 18 indicates the approach taken by companies with respect to their IBNR calculation. One of the more common approaches is to use a completion method (or claim triangle approach) to estimate the number of IBNR claims. The IBNR reserve is then calculated by multiplying the estimate of IBNR claims by an average claim reserve size. Another approach is to subtract the reported incurred loss ratio from the anticipated loss ratio times earned premium to estimate the amount of unreported claims. Other approaches include combination of the completion and loss ratio approaches or high-level estimation.

FIGURE 18: IBNR METHODOLOGY

METHODOLOGY	NUMBER OF INDIVIDUAL COMPANIES
COMPLETION / TRIANGLE APPROACH	8
LOSS RATIO / % OF PREMIUM	5
OTHER	11

ADEQUACY

Almost all companies perform retrospective reserve adequacy tests. Most companies (12 of 20) indicated that these tests were performed annually while others were more frequent (three reported quarterly and five reported monthly).

SYSTEM

Figure 19 shows the number of carriers that use a commercial valuation system for their disabled life reserves versus those that have “homegrown” systems. The use of “homegrown” systems is more common for DLRs than ALRs. Seven of the companies that use commercial systems for their ALRs use “homegrown” systems for their DLRs.

FIGURE 19: DLR SYSTEM

SYSTEM	NUMBER OF INDIVIDUAL COMPANIES
HOMEGROWN	17
COMMERCIAL	7

SYSTEM	NUMBER OF GROUP COMPANIES
HOMEGROWN	2
COMMERCIAL	2

RESERVING APPROACH FOR COMPLEX RIDERS

Companies were asked about the modeling approach for some riders for LTC. Almost all companies responded that inflation protection benefits are explicitly accounted for in the calculations. However, for two of the more complex and infrequent riders, the majority of companies did not explicitly adjust their claim reserves. All companies responded that they either ignore non-forfeiture benefits such as the shortened benefit period or conservatively hold the full benefit period (as opposed to only holding the claim reserve for the shortened period of time). Similarly, only four of 14 companies responded that they adjust the claim reserve to account for shared care benefits.

CLAIM STATUS DEFINITIONS AND ADJUSTMENTS

As the size of claim reserves grows, more companies are refining the claim reserve calculation to address claim situations other than the typical “open and in claim payment status” situations. Some of those other situations include “claims during the elimination period,” “pending claims waiting for approval,” “closed claims that may reopen,” and “claims in final payment status.”

Figure 20 shows that the most common approach for claims in the elimination period is to explicitly account for them in the disabled life reserve. The other approach is to implicitly include them in the IBNR development.

FIGURE 20: CLAIMS DURING THE ELIMINATION PERIOD

APPROACH	NUMBER OF INDIVIDUAL COMPANIES
EXPLICITLY ACCOUNTED FOR IN DLR	15
IMPLICITLY INCLUDED IN IBNR	9

Similar to claims in the elimination period, the majority of companies explicitly reserve for pending claims. These claims are known to the company, but are in the process of having their benefit eligibility verified. The most common approach is to include these claims with the known disabled life reserve, with some companies applying an adjustment factor to reflect the probability that the claim will be approved.

FIGURE 21: PENDING CLAIMS WAITING FOR APPROVAL

APPROACH	NUMBER OF INDIVIDUAL COMPANIES
EXPLICITLY ACCOUNTED FOR IN DLR	14
IMPLICITLY INCLUDED IN IBNR	9

Similar to claims in the elimination period, the majority of companies explicitly reserve for pending claims. These claims are known to the company, but are in the process of having their benefit eligibility verified.

Figure 22 shows that most companies do not establish any claim reserve for closed claims that may reopen. Depending on the definition of a claim, some claims may close, but end up reopening later as the same claim. For example, a claimant may recover and stop claiming benefits, but relapse a couple months later and need to resume benefits. In that situation the previously closed claim will reopen.

FIGURE 22: CLOSED CLAIMS THAT MAY REOPEN

APPROACH	NUMBER OF INDIVIDUAL COMPANIES
NOT REFLECTED	18
SOME ADJUSTMENT MADE	4

Figure 23 shows that most companies do not make any adjustment for claims that are known to be in a final payment status. Sometimes it is known that an open claim is about to be closed, but there is only one payment left (such as in the case of death, but the final bill is outstanding). Some companies do make an adjustment for those claims, reducing the claim reserves.

FIGURE 23: CLAIMS IN FINAL PAYMENT STATUS

APPROACH	NUMBER OF INDIVIDUAL COMPANIES
NO ADJUSTMENT	17
SOME ADJUSTMENT MADE	5

For the first time, we have surveyed companies about the assets supporting the reserves. We queried the asset allocation, actual portfolio yield, and expected portfolio yield (through examination of the current pricing interest rate).

IV. ASSET ASSUMPTIONS

For the first time, we have surveyed companies about the assets supporting the reserves. We queried the asset allocation, actual portfolio yield, and expected portfolio yield (through examination of the current pricing interest rate). In addition, we asked about any investment hedging strategies in place.

ASSET ALLOCATION

Figure 24 below shows the average asset allocation by different asset classes, based on a simple average of responses given from the 16 individual companies that responded. The asset allocation did vary considerably by company. Some companies hold primarily Treasuries and AAA bonds while other companies hold a greater proportion of risky assets. Also, there was a wide dispersion for mortgages, as some companies hold 20% to 35% of their assets in mortgages, while others have less than 5%.

FIGURE 24: ASSET ALLOCATION	
ASSET CLASS	AVERAGE
TREASURIES	4.9%
AAA BONDS	13.8%
AA BONDS	7.8%
A BONDS	28.5%
BBB BONDS	16.4%
BB AND LOWER	4.9%
PREFERRED STOCK	0.4%
COMMON STOCK	0.8%
REAL ESTATE	0.5%
MORTGAGES	14.2%
OTHER	7.8%

When determining the asset allocation for LTC products, it is important to consider matching asset and liability risks. For example, the prepayment risk in some callable bonds and mortgages should be carefully considered for LTC. When interest rates drop, the bonds and mortgages are more likely to be called, reducing the portfolio yield. As a result, unlike other product lines, for LTC there is no offsetting adjustment on the liability side (such as changing the crediting rate) for changes in asset yield, thereby making these assets potentially more risky for LTC than for other products.

In addition, companies should be aware of the potential risk-based capital implications with respect to asset allocation selection. For example, the NAIC requires more risk-based capital to be held on more risky assets. The additional yield from those more risky assets is therefore reduced by the additional cost of capital for holding those assets as well as the higher default risk.

DURATION FOR Long-Term CARE

Of 15 responses, the duration ranged from 5.8 to 17.0 years, with an average of 10.0 years. However, most responses (11 of 15 companies) fell within the range of 8 to 12 years.

The survey asked for the asset duration for the LTC product line. A wide range was provided. Of 15 responses, the duration ranged from 5.8 to 17.0 years, with an average of 10.0 years. However, most responses (11 of 15 companies) fell within the range of 8 to 12 years.

The survey did not explicitly ask if there were differences in investment strategies between the assets backing the ALR and DLR. Some companies indicated that they were considering varying their GAAP valuation interest rate between their ALR and their DLR because of the theoretically shorter duration associated with the assets backing the DLR.

CURRENT PORTFOLIO YIELD

Figure 25 shows the current portfolio yield from the 19 companies that responded. The average yield was 5.99% and ranged between 4.80% and 6.75%. While not readily apparent from Figures 24 and 25, there is a lack of correlation between the risk taken based on asset allocation and the resulting portfolio yield. This may be due to the timing of when assets were purchased rather than the asset allocation.

Figure 25 shows the current portfolio yield from the 19 companies that responded. The average yield was 5.99% and ranged between 4.80% and 6.75%.

FIGURE 25: CURRENT PORTFOLIO YIELD

YIELD	NUMBER OF INDIVIDUAL COMPANIES
<=5.00%	1
5.01% TO 5.50%	2
5.51% TO 6.00%	4
6.01% TO 6.50%	10
> 6.50%	2

CURRENT PRICING INTEREST RATE ASSUMPTION

Figure 26 shows the current pricing interest rate assumptions. The average response was 5.73%. In today's low-interest-rate environment, the pricing interest rate, as expected, is lower than the actual portfolio rate.

Figure 26 shows the current pricing interest rate assumptions. The average response was 5.73%.

FIGURE 26: CURRENT PRICING INTEREST RATE ASSUMPTION

ASSUMPTION	NUMBER OF INDIVIDUAL COMPANIES
<=4.99%	0
5.00% TO 5.49%	6
5.50% TO 5.99%	3
6.00%	6
> 6.01%	2

INTEREST RATE HEDGING APPROACH

Figure 27 shows the interest rate hedging approach used by different companies. The majority of companies that responded do not utilize any form of interest rate hedging. Two companies use an internal hedge between different product lines. Five companies use an external hedge, such as an interest rate swap. As may be expected, those companies tend to have larger blocks of business where they achieved the critical mass needed for efficiently establishing an external hedging approach.

FIGURE 27: INTEREST RATE HEDGING APPROACH

APPROACH	NUMBER OF INDIVIDUAL COMPANIES
DO NOT HEDGE	15
INTERNAL HEDGE	2
EXTERNAL HEDGE	5

APPENDIX A

List of Participating Companies

AEGON Insurance Group

Allianz Life Insurance Company of North America

Ameriprise Financial

Assurity Life Insurance Company

Bankers Life & Casualty Company

Berkshire Life Insurance Company

CNA Insurance Companies

Conseco Insurance Companies

CUNA Mutual Life Insurance Company

Equitable Life & Casualty Insurance Company

Genworth Financial

Guarantee Trust Life Insurance Company

John Hancock Life Insurance Company

LifeSecure Insurance Company

Metropolitan Life Insurance Company

Minnesota Life Insurance Company

Mutual of Omaha Insurance Company

New York Life Insurance Company

Northwestern Mutual

Physicians Mutual Insurance Company

Prudential Insurance Company

State Farm Mutual Auto Insurance Company

Thrivent Financial for Lutherans

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