



# **Long-Term Care Actuarial Valuation**

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*As of June 30, 2015*



CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

# Long-Term Care Actuarial Valuation as of June 30, 2015

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## Actuarial Certification

To the best of our knowledge, this report is complete and accurate and contains sufficient information to fully and fairly disclose the funded condition of the CalPERS Long-Term Care Program. This valuation is based on the participant and financial data as of June 30, 2015. It is our opinion that the valuation has been performed in accordance with generally accepted actuarial principles, in accordance with standards of practice prescribed by the Actuarial Standards Board, and that the assumptions and methods are internally consistent and reasonable for the Program related to actual and anticipated future experience.

The undersigned, with actuarial credentials, meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

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# HIGHLIGHTS AND EXECUTIVE SUMMARY

- INTRODUCTION
- PURPOSE OF THE REPORT
- FUNDED STATUS AND MARGIN FOR THE PROGRAM
- KEY FINDINGS
- CHANGES SINCE THE PRIOR VALUATION
- SUBSEQUENT EVENTS



## Introduction

This is the actuarial valuation report as of June 30, 2015 for the CalPERS Long-Term Care Program prepared by CalPERS actuarial staff. The June 30, 2014 actuarial valuation was prepared by United Health Actuarial Services, Inc. (UHAS). UHAS assisted in the development of assumptions and our valuation results are consistent with their parallel valuation.

This actuarial valuation reflects the Stabilization Plan that was approved by the Board in October 2012 that included premium increases for certain policies and permitted policy conversions for participants to move to a less expensive policy.

This actuarial valuation was performed based on best estimate assumptions that are appropriate at the date of valuation. We do not reflect the potential for adverse deviations in actual future experience in our best estimate assumptions. Assumptions could change as more information becomes known, which would impact the funded status reported in this valuation. The models, scenarios and assumptions used are reviewed and, if necessary, updated each year. This report summarizes the approach, assumptions, and results of our actuarial valuation of the CalPERS Long-Term Care (LTC) Program as of June 30, 2015. For information about the sensitivity of actuarial assumptions on the valuation results, please refer to the “Risk Analysis” section and Appendix A.

## Purpose of the Report

The June 30, 2015 actuarial valuation report of the CalPERS Long-Term Care Program has been prepared by CalPERS actuarial staff in order to:

- Determine whether assets as of June 30, 2015 and expected future premium levels are sufficient to provide the future benefits
- Provide actuarial information as of June 30, 2015 to the CalPERS Board of Administration and other interested parties
- Provide information as of June 30, 2015 to be used in CalPERS financial statements

Use of this report for other purposes may be inappropriate.

## Funded Status and Margin for the Program

As of June 30, 2014, the funded status for the Long-Term Care Program was 123 percent and the margin was 23.49 percent. The margin decreased as of June 30, 2015 over the margin from last year mainly because of lower-than-expected investment returns and higher-than-expected claim costs. The funded status as of June 30, 2015 is now 111 percent and the margin is 14.44 percent based on the best estimate assumptions. The table below shows the funded status and margin as of June 30, 2015.

### Funded Status and Margin as of June 30, 2015

Component	(\$ in Millions)
1. Present Value of Future Benefits	\$6,144
2. Present Value of Future Expenses	\$388
3. Present Value of Future Premiums (PVFP)	\$2,868
4. Valuation Liabilities (= 1 + 2 – 3)	\$3,664
5. Valuation Assets	\$4,078
6. Valuation Margin (= 5 – 4)	\$414
7. Margin as a % of PVFP (= 6 / 3)	14.44%
8. Funded Status (= 5 / 4)	111%

The funded status and margin/(deficit) have fluctuated greatly over the last few years as a result of plan experience, the investment return assumption changes in 2010 and 2012, and premium rate adjustment in 2010, 2013 and 2015. The table below shows the funded status and the margin/(deficit) for the Long-Term Care Program for the last 5 years based on the best estimate assumptions (i.e., the “base case” scenario).

### 5 Year History of Funded Status and Margin

Valuation Date	Funded Status	Margin
June 30, 2011	127%	23.14%
June 30, 2012	96%	(4.66%)
June 30, 2013	123%	19.66%
June 30, 2014	123%	23.49%
June 30, 2015	111%	14.44%

## Key Findings

The following are the key findings from this actuarial valuation:

- The funded status decreased from 123 percent on June 30, 2014 to 111 percent on June 30, 2015, and the margin decreased from 23.49 percent to a margin of 14.44 percent. The main reason for these decreases is that the investment return in fiscal year 2014-15 was much lower than expected.
- The actual conversion rate as of August 2015 has been higher than assumed in the 2013 and 2014 valuation for a subset of participants that were offered a conversion option from 2013. For participants with LTC1 Lifetime Inflation converting to 10-yr with Benefit Increase Option, the actual conversion rates were 9.4% in 2014 and 19.5% in 2015, while the assumed conversion rates were 15% and 10% respectively. For participants with LTC2 Lifetime Inflation converting to 10-yr with Benefit Increase Option, the actual conversion rates were 20.2% in 2014 and 27.2% in 2015, while the assumed conversion rates were 18% and 3% respectively. This higher than expected conversion resulted in an improvement to both the margin and funded status.
- The Program suffered an investment loss during 2014-15 fiscal year as a result of an investment return of negative 0.93 percent, which was lower than the assumed 5.75 percent discount rate assumption. The investment income was less than expected by \$274,035,012 and resulted in a decrease to both the funded status and margin.
- The CalPERS underlying morbidity experience continues to develop. The emerging experience showed that there is trend for higher incurred claims in years of a premium rate increase. The worse-than-expected claim costs led to a decrease to both the funded status and margin.
- The actual expenses were 11.6% higher than the projected for the 2014-15 fiscal year.

A complete reconciliation of the Program's margin/(deficit) is provided on page 12.

## Changes Since the Prior Valuation

### **Actuarial Assumptions**

Each year, actual experience is measured against the assumptions, and assumptions are updated to reflect actual experience. In this valuation, we made changes to the morbidity and expense assumptions. We used actual accepted conversions as of the end of August 2015 and assumed no conversions for the 2016 rate increase. Please refer to the "Summary of Key Assumptions" Section on page 13 for more information on the changes that were made. Assumptions are documented in more detail in Appendix C.

### **Premiums and Policies**

In an effort to stabilize the LTC Fund, CalPERS implemented corrective actions, including premium increases, in 2003, 2007 and 2010. In addition, starting in 2011, all LTC1 policies with lifetime coverage and inflation protection receive an on-going annual 5 percent premium increase. In October 2012, the CalPERS Board approved the Stabilization Plan to help improve the financial position of the Long-Term Care Program. The Stabilization Plan included premium increases for some participants and provided the ability for participants to convert to less expensive policies, and stopping the ongoing 5 percent rate increase after 2014. LTC1 and LTC2 participants with the lifetime benefit period or inflation protection will have their premiums increased by 36 percent in both 2015 and 2016 for a cumulative 85 percent increase. Participants who are subject to the 85 percent rate increase were given options to convert to other benefit coverage plans to avoid the 85 percent rate increase in the fall of 2014 and again in the spring of 2015. Participants will be given another chance to convert in 2016. This valuation projection reflected the actual conversion responses received by CalPERS as of August 2015.

### **Subsequent Events**

There were no known events that would impact the results of this valuation as of the time of preparing this report. The actuarial valuation report as of June 30, 2015 is based on financial information as of that date. Changes in the value of assets subsequent to that date, to the extent that they exist, are not reflected. Declines in asset values will decrease the funded status of the Program, while increases will increase the funded status of the Program.

# VALUATION RESULTS

- COMPARISON OF CURRENT AND PRIOR YEAR
- RECONCILIATION TO PRIOR VALUATION RESULTS
- SUMMARY OF KEY ASSUMPTIONS



## Comparison of Current and Prior Year

The Program results summarized throughout this report refer to funded status and also to “deficits” or “margins.” A deficit is an estimate of what level of a one-time rate increase in premiums would be needed to bring the Program back to a zero margin. If the current fund balance and present value of earnings are adequate, a positive number or a “margin” would result. A second method of expressing the current financial status of the Program is the funded status. In general, the funded status is the Program assets divided by the accrued liability, or reserves. For the LTC Program, the accrued liability is equal to the present value of future benefits and expenses less the present value of participant premiums. This definition is consistent with a statutory gross premium valuation reserve for LTC insurance. In this context, a breakeven position is a funded ratio of 100 percent.

These two methods of expressing the financial status of the LTC Program are consistent in that both will always produce a margin when the funded ratio is greater than 100 percent and will always produce a deficit when the funded ratio is lower than 100 percent. They are not consistent in that a 10 percent margin does not produce a 110 percent funded ratio.

The table below summarizes the results of the actuarial valuation of the CalPERS Long-Term Care Program as of June 30, 2015, compared to June 30, 2014. Results presented include the present value of future cash flows for the current inforce participants. Present values are based on 60 years of projected cash flow.

Component	6/30/2015 (\$ in Millions)	6/30/2014 (\$ in Millions)
1. Present Value of Future Benefits	\$6,144	\$6,223
2. Present Value of Future Expenses	\$388	\$381
3. Present Value of Future Premiums (PVFP)	\$2,868	\$3,251
4. Valuation Liabilities (= 1 + 2 – 3)	\$3,664	\$3,353
5. Valuation Assets	\$4,078	\$4,117
6. Valuation Margin (= 5 – 4)	\$414	\$764
7. Margin as a % of PVFP (= 6 / 3)	14.44%	23.49%
8. Funded Status (= 5 / 4)	111%	123%

Our analysis indicates that if experience conforms to our best estimate assumptions, the current assets and rate structure are sufficient to fund future claims and expenses for the next 60 years.

Liability cash flows were derived through the application of a projection of expected future cash flows based on the inforce policies as of June 30, 2015 using a set of underlying assumptions based upon the CalPERS Long-Term Care Program's assumed experience. Policies are grouped and projected using specific characteristics including issue age, issue date, policy form, benefit period, elimination period, underwriting status and benefit options. We have not generated liabilities and reserves consistent with statutory reporting requirements as this self-funded plan is not subject to such requirements.

Detailed yearly cash flows and projected cash balances are provided in Appendix A.

## Reconciliation to Prior Valuation Results

Between June 30, 2014 and June 30, 2015, the Long-Term Care Program decreased from a margin of 23.49 percent to a margin of 14.44 percent. Several factors impacted the margin either positively or negatively during the fiscal year. The Program suffered an investment loss during 2014-15 fiscal as a result of an investment return of negative 0.93 percent, which was lower than the assumed 5.75 percent discount rate assumption. The lower than expected return resulted in a big decrease in the margin by 9.79 percent. The Program had a slight demographic experience gain. This gain was due to higher and favorable conversions. Adjustments were made to the actuarial assumptions, specifically changes to the morbidity to better reflect actual experience over the last 12 months. The morbidity increased by 3 percent when compared to that of last year, which brought down the margin by 6.15 percent. No adjustments were made to lapse and mortality assumptions. The aggregate impact of these assumption changes was a decrease in margin. The table below provides a detailed reconciliation as to the factors that contributed to the margin.

	Results as a Present-Value of Premiums
Margin as of 6/30/14:	23.49%
Projected One Year Forward (Passage of Time)	2.10%
Demographic Experience Gain	4.76%
Investment Loss for FY 2014-2015	(9.79%)
Morbidity Assumption Change	(6.15%)
Expenses Assumption Change	(0.09%)
Model Change	0.12%
Margin as of 6/30/15:	14.44%

## Summary of Key Assumptions

To calculate the future claim payments, premiums and investment income, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year, actual experience is measured against the assumptions, and assumptions are updated to reflect actual experiences. This section provides general information on key assumptions used in the 2015 valuation.

### **Discount Rate**

The discount rate used in this valuation represents the expected long-term rate of return, based on CalPERS investment policy. For valuation purposes, the discount rate is 5.75 percent net of investment expenses. The rate was approved by the Board in April 2012. The discount rate is a major component of the valuation process and is used to project asset growth and to determine present values of future premiums, expenses and benefits. CalPERS Long-Term Care Program experienced an investment loss during the fiscal year ended June 30, 2015, since the actual return for the year was lower than the discount rate assumption. The actual return was negative 0.93 percent.

### **Morbidity**

For Long-Term Care insurance products, the substantial financial risks lie in morbidity assumptions. The morbidity assumption reflects the amount of claim costs expected for participants. The key components driving claim costs are:

- Claim incidence, which is the probability of going on claim
- Claim continuance, which is the length of time staying on claim, and
- Utilization, which is the level of claim payment

In 2014-15, the actual claim experience for the CalPERS Long-Term Care Program was slightly higher than expected, which contributed to changes to the morbidity assumptions. The new claim costs are about 3% higher than last year's claim costs, and that change is within a reasonable range of fluctuation. To revise the assumption, expected claim costs were credibility weighted between LTCG's manual morbidity assumptions utilized in 2005 and CalPERS actual claims experience. Some changes were also made to address the potential for anti-selection resulting from the less healthy participants not converting to less expensive policies which were offered as part of the Stabilization Plan. Please see the policy conversion section below for additional discussion. Actual claim experience is summarized in the table "Comparison of Actual to Expected Cash Flows for 2014-15" in the Assets Section on page 25.

## Lapse

The lapse assumption reflects the expected portion of participants who terminate their policies each year by not paying the renewal premiums. Lapse assumptions can vary based on a variety of factors, including the participants' age at enrollment and the number of years participants have their policies. In general, it is assumed that the longer that participants keep their policies, the less likely they are to lapse. Lapse rate assumptions greatly affect long-term care insurance premiums because when individuals lapse, future liabilities are immediately reduced although current assets are not affected.

In 2014-15, the CalPERS Long-Term Care Program experienced slightly lower than expected lapses from participants terminating their policies, which resulted in losses and a lower margin. Participants terminating their policies as a result of premium increases are usually referred to as shock lapses and are discussed next.

Lapse rates remained the same for the June 30, 2015 valuation as for the June 30, 2014 valuation.

Shock lapses are an insurance phenomenon where individuals drop their coverage at a higher rate than usual due to a specific event such as a premium rate increase. Individuals who let their policies lapse because of rate increases are usually in better health. Participants do not normally drop their policies if they anticipate they will soon have claims. As a result, individuals who retain their policies are often, on average, in worse health than those who lapse their policies. This participant decision process is referred to as anti-selection. To minimize the shock lapses, CalPERS offered and will continue to offer many benefit change options to alleviate the impact of the rate increase. The election to switch coverage is referred to as conversion.

CalPERS historically has experienced very minimal shock lapses from the rate increases, and this trend has continued in the last fiscal year for the announced 2015-16 premium rate increase, likely because of the following reasons:

- An industry-wide steep slope to issue-age premiums generally does not allow the participants to purchase less expensive coverage elsewhere, and
- CalPERS offered many new conversion options

Shock lapse rates are based on historical experience. The shock lapse rates vary by attained age. The older the participant is, the less likely the policy is going to lapse. This valuation includes no shock lapse rates for the second 36 percent rate increase that will be implemented in 2016, since the options offered to alleviate the impact of the rate increase started in 2013 and participants should have lapsed before July 2015 to avoid the cumulative 85% rate increase in 2015 and 2016.

**Policy Conversion**

As part of the Stabilization Plan that was adopted by the CalPERS Board in October 2012, an assumption was made that 10 percent of the participants subject to the premium increases would convert to a less expensive policy. The actual 2014 and 2015 conversions turned out to be higher than that assumed in the 2014 valuation.

<b>LTC1 Lifetime Inflation to 10-yr Benefit Increase Option</b>		
	2014	2015
2014 Valuation Assumption	15.0%	10.0%
Actual Conversion	9.4%	19.5%

<b>LTC2 Lifetime Inflation to 10-yr Benefit Increase Option</b>		
	2014	2015
2014 Valuation Assumption	18.0%	3.0%
Actual Conversion	20.2%	27.2%

In the 2015 valuation, no further conversions were assumed for the second 36 percent rate increase which will be implemented in 2016. One reason is that most participants should have exercised their conversion options before the 85 percent rate increase kicks in after June 30, 2015. Another reason is that waiting for one more year to convert in 2016 rather than in 2015 will result in higher conversion premium offers because the premiums are based on higher benefits from the automatic inflation option and a higher premium base resulting from the implemented 2015 premium increase.

Conversion and downgrade activity continue to help the financial position of the LTC Program, but there is also likely to be anti-selection associated with these conversions – i.e. on average healthier participants convert to less expensive policies believing they are less likely to go on claim in the near future and less healthy participants who fear a near term claim are more likely to accept the rate increase. For this reason, the morbidity assumption was modified to reflect the fact that participants who do not convert to a less expensive policy may be more likely to go on claim.

**Mortality**

The mortality assumption summarizes the expected death rate of the population. Similar to the lapse assumption, mortality reduces future liabilities without affecting assets.

We utilized the mortality assumptions developed in the 2014 valuation, which were based on a complete mortality study which includes mortality improvement assumptions reflecting the work completed by CalPERS actuarial staff and updated industry mortality improvement studies. Please see Appendix C for greater details on the mortality assumptions.

**Expense**

The expenses of managing the Program include administrative expenses. Expenses are based on the Third Party Administrator fee and CalPERS expenses related to internal staff working on the LTC Program. The expenses were updated based on last year's actual expenses and are expressed either as per participant per month, flat expenses per month, or as a percent of future incurred claims.

**Rate Increase**

The projection reflected the actual rate increase based on the plan conversion option letters received by the end of August 2015. Accordingly, we applied morbidity anti-selection for those rate increases and plan conversion options.

Participants receiving the 85 percent premium rate increase in 2015 were offered a conversion option, and for those participants that accepted the conversion, the effective date was after the valuation date of this report, i.e. June 30, 2015. To account for these accepted conversions, the inforce population data was adjusted. The 2015 valuation data reflected all the conversions that have been elected by end of August 2015.

Regarding all assumptions previously discussed, actual experience may differ from that assumed in the projections. To the extent actual experience is different from the assumptions underlying this report, so will actual results differ from the projected results shown here. Sensitivity of results to changes in assumptions is provided in the Risk Analysis section.

# RISK ANALYSIS

- SENSITIVITY TESTING OF KEY ASSUMPTIONS
- ADDITIONAL SENSITIVITY TESTING



## Risk Analysis

The actuarial calculations supplied in this report are based on a number of assumptions about very long-term demographic and economic behavior. Unless these assumptions (morbidity, lapses, deaths, expenses, and investment return) are exactly realized each year, there will be differences on a year-to-year basis. The year-to-year differences between actual experience and the assumptions are called actuarial gains and losses and either increase or decrease the funded status and margin of the LTC Program. If the actual experience differs from the assumption over a prolonged period, it may result in a need for premium changes to ensure the financial integrity of the LTC Program. Included next are the results of sensitivity testing that was performed around key actuarial assumptions.

### Sensitivity Testing of Key Assumptions

Several scenarios were run to test the sensitivity of future cash flows to changes in assumptions with respect to morbidity, voluntary lapses, mortality, and investment earnings. Tables below illustrate the impact of changes to the base assumptions on asset adequacy levels.

Results are highly sensitive to the assumptions underlying the calculations. While these tests indicate outcomes under each of these scenarios, they do not indicate the likelihood of each scenario, and therefore, this testing does not indicate the probability that projected values will be realized.

Detailed yearly cash flows and projected fund balances for the base case and each of the scenarios tested as part of the sensitivity testing are provided in Appendix A. The base case scenario is the scenario that is based on our current actuarial assumptions used for this valuation.

#### **Discount Rate**

The discount rate assumption used in this valuation is 5.75 percent. For the sensitivity analysis, we are testing the impact of future investment returns on the margin and funded ratio of the LTC Program by increasing and decreasing the discount rate by 0.5 percent. The table below shows the impact on the margin and funded status. As expected, a lower discount rate results in a lower margin and lower funded status while a higher discount rate results in an increase for both measures.

#### **Impact of Discount Rate on Margin and Funded Ratio**

<b>Scenario Description</b>	<b>Margin</b>	<b>Funded Ratio</b>
Base Case	14.44%	111%
Discount rate increased by 0.5% to 6.25%	25.97%	121%
Discount rate decreased by 0.5% to 5.25%	2.40%	102%

**Morbidity**

The morbidity assumption reflects the amount of claim costs expected for participants in the future. For the sensitivity analysis, we are testing the impact claims have on the margin and funded ratio of the LTC Program by increasing and decreasing future expected claims by 10 percent. As shown in the table below, if future expected claims are higher than assumed in the valuation, both the margin and funded status will be lower, while lower than expected claims would result in an increase for both measures.

**Impact of Morbidity on Margin and Funded Ratio**

Scenario Description	Margin	Funded Ratio
Base Case	14.44%	111%
Lower Morbidity (Future claims reduced by 10%)	32.88%	130%
Higher Morbidity (Future claims increased by 10%)	(4.00%)	97%

**Lapses**

The lapse assumption reflects the expected portion of participants who terminate their policies each year by not paying the renewal premiums. For the sensitivity analysis, we are testing the impact lapses have on the margin and funded ratio of the LTC Program by increasing and decreasing the incidence of lapses by 0.25 percent. As shown in the table below, if future expected lapses are lower than assumed in the valuation, both the margin and funded status will be lower while higher than expected lapses would result in an increase for both measures.

**Impact of Lapses on Margin and Funded Ratio**

Scenario Description	Margin	Funded Ratio
Base Case	14.44%	111%
Lapse Rates increased by 0.25%	18.78%	115%
Lapse Rates decreased by 0.25%	10.04%	108%

**Mortality**

The mortality assumption reflects the expected death rate of the participants in the LTC Program. Similar to the lapse assumption, mortality reduces future liabilities without affecting the assets on hand. For this reason higher than expected mortality will generally result in an increase in the margin and funded status. For the sensitivity analysis, we are testing the impact mortality rates have on the margin and funded ratio of the LTC Program by increasing and decreasing the mortality rates by 10 percent. As shown in the table below, if mortality rates improve i.e. rates are lower, both the margin and funded status will be lower, while if mortality rates deteriorate i.e. rates are higher, both measures would increase.

**Impact of Mortality on Margin and Funded Ratio**

Scenario Description	Margin	Funded Ratio
Base Case	14.44%	111%
Mortality rates increased by 10%	20.92%	117%
Mortality rates decreased by 10%	7.32%	106%

**Best and Worst Case**

In order to test for the potential “best case” and “worst case” scenarios, the sensitivity of four of the key assumptions was tested simultaneously. The table below shows the combined impact on the margin and the funded status if the experience were to be better and worse than expected for the discount rate, morbidity, lapses and mortality.

**Combined Impact of key Assumptions on Margin and Funded Status**

Scenario Description	Margin	Funded Ratio
Base Case	14.44%	111%
Discount rate increases by 0.5% to 6.25% Lower Morbidity (Future claims reduced by 10%) Lapses increased by 0.25% Mortality rates increased by 10%	53.46%	154%
Discount rate decreases by 0.5% to 5.25% Higher Morbidity (Future claims increased by 10%) Lapses decreased by 0.25% Mortality rates decreased by 10%	(29.70%)	82%

## Additional Sensitivity Testing

In addition to the sensitivity testing summarized above, we tested more robust investment scenarios on the base case scenario using the New York 7 interest rate scenarios. In private industry, most LTC insurance companies use the seven interest rate scenarios defined in New York Regulation 126 to test asset adequacy and form an opinion with respect to asset adequacy analysis. Those scenarios prescribe the use of specific discount rate assumptions as described in the table below

New York Regulation 126 Discount Rate Sensitivity											
Projection Years											
Scenarios	1	2	3	4	5	6	7	8	9	10	11+
Scenario #1	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%	5.75%
Scenario #2	5.75%	6.25%	6.75%	7.25%	7.75%	8.25%	8.75%	9.25%	9.75%	10.25%	10.75%
Scenario #3	5.75%	6.75%	7.75%	8.75%	9.75%	10.75%	9.75%	8.75%	7.75%	6.75%	5.75%
Scenario #4	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%	8.75%
Scenario #5	5.75%	5.25%	4.75%	4.25%	3.75%	3.25%	2.75%	2.25%	1.75%	1.25%	0.75%
Scenario #6	5.75%	4.75%	3.75%	2.75%	1.75%	0.75%	1.75%	2.75%	3.75%	4.75%	5.75%
Scenario #7	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%

The table below shows the impact on the margin and the funded status of varying the discount rate assumption as described in the above table.

### Impact of Additional Discount Rate Sensitivity on Margin and Funded Ratio

Scenario	Margin	Funded Ratio
Scenario #1	14.44%	111%
Scenario #2	75.18%	185%
Scenario #3	44.48%	139%
Scenario #4	77.47%	182%
Scenario #5	(103.24%)	53%
Scenario #6	(16.01%)	89%
Scenario #7	(67.22%)	63%

Detailed yearly cash flows and projected fund balances for these additional discount rate sensitivity scenarios are provided in Appendix B.

# ASSETS

- RECONCILIATION OF THE MARKET VALUE OF ASSETS OVER THE PRIOR FISCAL YEAR
- COMPARISON OF ACTUAL TO EXPECTED CASH FLOWS
- ASSET ALLOCATION



## Reconciliation of the Market Value of Assets Over the Prior Fiscal Year

1. Market Value of Assets as of June 30, 2014	\$4,116,527,291
2. Premiums Received during fiscal year 2014 -15	\$272,361,426
3. Benefit Payments in 2014 -15	(\$248,550,001)
4. Expense Payments in 2014 -15	(\$26,047,976)
5. Investment Returns in 2014 -15	(\$36,550,160)
6. Market Value of Assets as of June 30, 2015 [(1) + (2) - (3) - (4) + (5)]	\$4,077,740,580

## Comparison of Actual to Expected Cash Flows

Below is a table comparing the actual cash flows in 2014-15 to the cash flows that were projected as part of the June 30, 2014 valuation. As can be seen, the investment experience had the biggest impact on the assets.

### Comparison of Actual to Expected Cash Flows for 2014-15

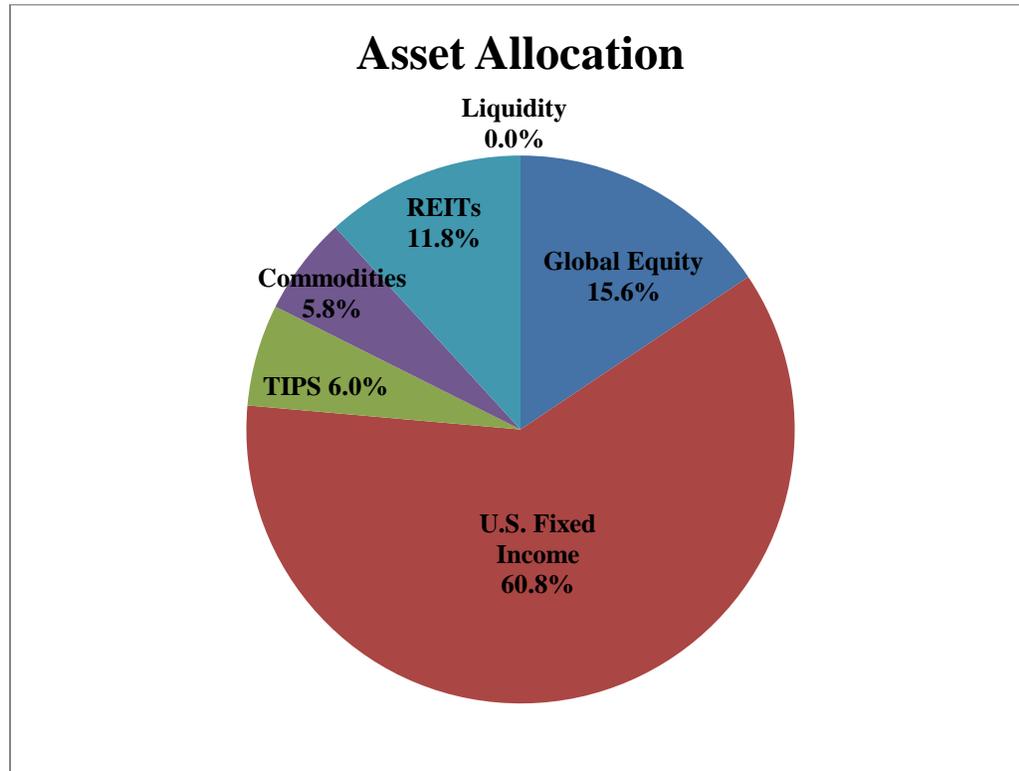
	Projected Results in the June 30, 2014 Valuation	Actual Results in June 30, 2015 Valuation	Difference
Fund Balance as of June 30, 2014	\$4,116,527,291	\$4,116,527,291	\$-
Cash Flows for 2014-15			
• Premiums	\$274,844,328	\$272,361,426	(\$2,482,902)
• Investment Income	\$237,484,852	(\$36,550,160)	(\$274,035,012)
• Paid Claims	(\$245,732,464)	(\$248,550,001)	(\$2,817,537)
• Expenses	(\$23,336,138)	(\$26,047,976)	(\$2,711,837)
Balance as of June 30, 2015	\$4,359,787,869	\$4,077,740,581	(\$282,047,288)

## Asset Allocation

CalPERS follows a strategic allocation policy that identifies the percentage of funds to be invested in each asset class. The target allocation was changed to a more conservative asset mix by the Board in April 2012.

The asset allocation and market value of assets are shown below as of June 30, 2015.

Asset Class	Target Allocation	Current Allocation	Current Market Value
Global Equity	15.00%	15.60%	\$641,228,075
U.S. Fixed Income	61.00%	60.80%	\$2,499,145,319
Treasury-Inflation Protected Securities (TIPS)	6.00%	6.00%	\$246,626,183
Commodities	6.00%	5.80%	\$238,405,310
Real Estate Investment Trusts (REITs)	12.00%	11.80%	\$485,031,493
Liquidity	0.00%	0.00%	\$0
<b>Total Net Assets At Market:</b>	<b>100.00%</b>	<b>100.00%</b>	<b>\$4,110,436,380</b>



# APPENDIX A

## 60 Year Projection of Fund Balance for Scenarios Used in Sensitivity Testing of Key Assumptions

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## Base Case Scenario

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years based on the actuarial assumptions used in this valuation.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
14.44%	\$414	111%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,357	\$12,104	\$115,958	\$4,199,552
2016	128,515	\$311,392	\$285,938	\$24,196	\$241,807	\$4,442,617
2017	123,465	\$320,592	\$305,953	\$24,852	\$255,850	\$4,688,255
2018	118,463	\$303,816	\$322,789	\$26,172	\$268,941	\$4,912,051
2019	113,470	\$287,680	\$335,850	\$27,253	\$280,898	\$5,117,526
2020	108,473	\$271,845	\$348,801	\$27,813	\$291,861	\$5,304,619
2021	103,503	\$256,321	\$362,858	\$28,492	\$301,738	\$5,471,327
2022	98,586	\$241,261	\$376,568	\$28,721	\$310,469	\$5,617,768
2023	93,727	\$226,769	\$388,198	\$28,866	\$318,103	\$5,745,576
2024	88,901	\$212,779	\$397,461	\$28,987	\$324,756	\$5,856,664
2025	84,091	\$199,067	\$407,232	\$29,104	\$330,459	\$5,949,854
2035	40,541	\$85,027	\$486,729	\$24,366	\$324,328	\$5,746,457
2045	11,392	\$20,344	\$363,543	\$11,645	\$251,269	\$4,443,223
2055	1,663	\$2,487	\$139,480	\$3,169	\$248,522	\$4,501,338
2065	124	\$148	\$24,949	\$1,695	\$376,975	\$6,920,097
2075	7	\$3	\$1,391	\$1,568	\$320,124	\$11,611,214

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$15,795,363	\$843,050	\$19,529,950
<b>Present Value as of June 30, 2015</b>	\$2,867,982	\$6,143,592	\$388,016	\$5,172,655

## Discount Rate Increased by 0.50 Percent to 6.25 Percent

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years if the assumed discount rate and expected return were 6.25 percent, i.e. 0.50 percent higher.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
25.97%	\$720	121%

### Projected Cash Flows and Fund Balance Over Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,357	\$12,104	\$125,891	\$4,209,484
2016	128,515	\$311,392	\$285,938	\$24,196	\$263,455	\$4,474,197
2017	123,465	\$320,592	\$305,953	\$24,852	\$280,072	\$4,744,057
2018	118,463	\$303,816	\$322,789	\$26,172	\$295,816	\$4,994,728
2019	113,470	\$287,680	\$335,850	\$27,253	\$310,493	\$5,229,798
2020	108,473	\$271,845	\$348,801	\$27,813	\$324,260	\$5,449,289
2021	103,503	\$256,321	\$362,858	\$28,492	\$337,021	\$5,651,280
2022	98,586	\$241,261	\$376,568	\$28,721	\$348,718	\$5,835,970
2023	93,727	\$226,769	\$388,198	\$28,866	\$359,407	\$6,005,081
2024	88,901	\$212,779	\$397,461	\$28,987	\$369,220	\$6,160,633
2025	84,091	\$199,067	\$407,232	\$29,104	\$378,198	\$6,301,563
2035	40,541	\$85,027	\$486,729	\$24,366	\$411,805	\$6,782,152
2045	11,392	\$20,344	\$363,543	\$11,645	\$403,207	\$6,676,441
2055	1,663	\$2,487	\$139,480	\$3,169	\$526,088	\$8,874,140
2065	124	\$148	\$24,949	\$1,695	\$900,017	\$15,287,312
2075	7	\$3	\$1,391	\$1,568	\$807,074	\$27,029,387

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$15,795,363	\$843,050	\$34,948,123
<b>Present Value as of June 30, 2015</b>	\$2,771,886	\$5,761,430	\$368,316	\$6,294,613

## Discount Rate Decreased by 0.50 Percent to 5.25 Percent

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years if the assumed discount rate and expected return were 5.25 percent, i.e. 0.50 percent lower.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
2.40%	\$71	102%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,357	\$12,104	\$106,002	\$4,189,596
2016	128,515	\$311,392	\$285,938	\$24,196	\$220,258	\$4,411,112
2017	123,465	\$320,592	\$305,953	\$24,852	\$231,948	\$4,632,847
2018	118,463	\$303,816	\$322,789	\$26,172	\$242,645	\$4,830,348
2019	113,470	\$287,680	\$335,850	\$27,253	\$252,181	\$5,007,106
2020	108,473	\$271,845	\$348,801	\$27,813	\$260,683	\$5,163,020
2021	103,503	\$256,321	\$362,858	\$28,492	\$268,063	\$5,296,054
2022	98,586	\$241,261	\$376,568	\$28,721	\$274,267	\$5,406,293
2023	93,727	\$226,769	\$388,198	\$28,866	\$279,336	\$5,495,333
2024	88,901	\$212,779	\$397,461	\$28,987	\$283,375	\$5,565,039
2025	84,091	\$199,067	\$407,232	\$29,104	\$286,408	\$5,614,178
2035	40,541	\$85,027	\$486,729	\$24,366	\$250,997	\$4,813,700
2045	11,392	\$20,344	\$363,543	\$11,645	\$137,016	\$2,569,039
2055	1,663	\$2,487	\$139,480	\$3,169	\$58,805	\$1,109,651
2065	124	\$148	\$24,949	\$1,695	\$46,926	\$927,796
2075	7	\$3	\$1,391	\$1,568	\$34,250	\$1,354,432

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$15,795,363	\$843,050	\$9,273,168
<b>Present Value as of June 30, 2015</b>	\$2,970,512	\$6,567,256	\$409,569	\$4,092,646

## Lower Morbidity (Future Claims Reduced by 10 Percent)

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years if the future claim costs were to be 10 percent lower than expected.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
32.88%	\$943	130%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,084	\$12,104	\$115,960	\$4,199,826
2016	128,515	\$311,392	\$281,023	\$24,196	\$241,935	\$4,447,935
2017	123,465	\$320,592	\$295,254	\$24,473	\$256,439	\$4,705,240
2018	118,463	\$303,816	\$306,904	\$25,018	\$270,374	\$4,947,508
2019	113,470	\$287,680	\$315,485	\$25,679	\$283,541	\$5,177,565
2020	108,473	\$271,845	\$324,426	\$26,186	\$296,035	\$5,394,833
2021	103,503	\$256,321	\$334,792	\$26,813	\$307,755	\$5,597,304
2022	98,586	\$241,261	\$345,286	\$26,996	\$318,638	\$5,784,921
2023	93,727	\$226,769	\$354,335	\$27,103	\$328,718	\$5,958,969
2024	88,901	\$212,779	\$361,566	\$27,186	\$338,091	\$6,121,087
2025	84,091	\$199,067	\$369,486	\$27,264	\$346,781	\$6,270,185
2035	40,541	\$85,027	\$438,130	\$22,641	\$387,393	\$6,931,706
2045	11,392	\$20,344	\$327,191	\$10,786	\$396,575	\$7,134,167
2055	1,663	\$2,487	\$125,532	\$2,974	\$522,342	\$9,544,235
2065	124	\$148	\$22,454	\$1,675	\$861,655	\$15,835,205
2075	7	\$3	\$1,252	\$1,567	\$738,484	\$26,787,573

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$14,348,031	\$792,713	\$33,208,640
<b>Present Value as of June 30, 2015</b>	\$2,867,982	\$5,636,065	\$366,694	\$6,477,562

## Higher Morbidity (Future Claims Increased by 10 Percent)

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years if the future claim costs were to be 10 percent higher than expected.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
(4.00%)	(\$115)	97%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,631	\$12,104	\$115,957	\$4,199,277
2016	128,515	\$311,392	\$290,853	\$24,196	\$241,680	\$4,437,300
2017	123,465	\$320,592	\$316,651	\$25,232	\$255,260	\$4,671,270
2018	118,463	\$303,816	\$338,674	\$27,326	\$267,508	\$4,876,594
2019	113,470	\$287,680	\$356,214	\$28,827	\$278,255	\$5,057,488
2020	108,473	\$271,845	\$373,177	\$29,440	\$287,687	\$5,214,404
2021	103,503	\$256,321	\$390,924	\$30,171	\$295,721	\$5,345,350
2022	98,586	\$241,261	\$407,850	\$30,445	\$302,300	\$5,450,616
2023	93,727	\$226,769	\$422,061	\$30,629	\$307,489	\$5,532,183
2024	88,901	\$212,779	\$433,356	\$30,788	\$311,422	\$5,592,241
2025	84,091	\$199,067	\$444,978	\$30,944	\$314,137	\$5,629,523
2035	40,541	\$85,027	\$535,328	\$26,092	\$261,263	\$4,561,209
2045	11,392	\$20,344	\$399,895	\$12,504	\$105,963	\$1,752,280
2055	1,663	\$2,487	\$153,428	\$3,364	(\$25,299)	(\$541,559)
2065	124	\$148	\$27,444	\$1,716	(\$107,704)	(\$1,995,012)
2075	7	\$3	\$1,530	\$1,569	(\$98,237)	(\$3,565,145)

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$17,242,695	\$893,387	\$5,851,260
<b>Present Value as of June 30, 2015</b>	\$2,867,982	\$6,651,120	\$409,338	\$3,867,747

## Lapses Increased by 0.25 Percent

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years if the lapse rates were to be 0.25 percent higher than expected for each of the next 60 years.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
18.78%	\$529	115%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,455	\$148,184	\$130,355	\$12,096	\$115,956	\$4,199,430
2016	128,028	\$310,498	\$285,860	\$24,142	\$241,781	\$4,441,707
2017	122,685	\$318,863	\$305,649	\$24,746	\$255,759	\$4,685,933
2018	117,417	\$301,396	\$322,119	\$26,006	\$268,759	\$4,907,963
2019	112,183	\$284,652	\$334,690	\$27,024	\$280,611	\$5,111,512
2020	106,972	\$268,291	\$347,018	\$27,523	\$291,466	\$5,296,729
2021	101,812	\$252,319	\$360,311	\$28,126	\$301,244	\$5,461,854
2022	96,730	\$236,884	\$373,147	\$28,279	\$309,899	\$5,607,211
2023	91,730	\$222,083	\$383,839	\$28,350	\$317,490	\$5,734,595
2024	86,786	\$207,848	\$392,126	\$28,396	\$324,141	\$5,846,062
2025	81,884	\$193,956	\$400,831	\$28,438	\$329,891	\$5,940,640
2035	38,487	\$80,741	\$467,352	\$23,220	\$329,427	\$5,848,682
2045	10,542	\$18,822	\$340,429	\$10,843	\$275,798	\$4,905,653
2055	1,499	\$2,240	\$127,394	\$2,934	\$305,189	\$5,549,519
2065	109	\$130	\$22,226	\$1,665	\$481,447	\$8,842,802
2075	6	\$3	\$1,209	\$1,566	\$410,693	\$14,896,778

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,522,219	\$15,153,889	\$813,735	\$22,264,443
<b>Present Value as of June 30, 2015</b>	\$2,814,120	\$5,984,973	\$378,282	\$5,387,477

## Lapses Decreased by 0.25 Percent

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years if the lapse rates were to be 0.25 percent lower than expected for each of the next 60 years.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
10.04%	\$293	108%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,794	\$148,445	\$130,360	\$12,112	\$115,960	\$4,199,673
2016	129,004	\$312,287	\$286,016	\$24,249	\$241,834	\$4,443,528
2017	124,248	\$322,327	\$306,257	\$24,959	\$255,941	\$4,690,582
2018	119,515	\$306,250	\$323,461	\$26,339	\$269,124	\$4,916,155
2019	114,768	\$290,732	\$337,015	\$27,484	\$281,187	\$5,123,575
2020	109,992	\$275,437	\$350,596	\$28,106	\$292,259	\$5,312,568
2021	105,217	\$260,375	\$365,426	\$28,863	\$302,236	\$5,480,890
2022	100,472	\$245,706	\$380,024	\$29,168	\$311,045	\$5,628,449
2023	95,762	\$231,540	\$392,612	\$29,391	\$318,724	\$5,756,710
2024	91,061	\$217,814	\$402,874	\$29,590	\$325,381	\$5,867,441
2025	86,353	\$204,299	\$413,741	\$29,784	\$331,037	\$5,959,252
2035	42,699	\$89,528	\$506,895	\$25,568	\$319,084	\$5,641,237
2045	12,309	\$21,984	\$388,192	\$12,508	\$225,675	\$3,960,459
2055	1,844	\$2,760	\$152,691	\$3,428	\$188,932	\$3,398,860
2065	141	\$169	\$28,001	\$1,730	\$266,845	\$4,893,145
2075	8	\$4	\$1,600	\$1,569	\$224,611	\$8,146,339

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,766,463	\$16,476,118	\$873,962	\$16,652,216
<b>Present Value as of June 30, 2015</b>	\$2,923,484	\$6,309,694	\$398,156	\$4,947,125

## Mortality Rates Increased by 10 Percent

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years if the mortality rates were to be 10 percent higher than expected.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
20.92%	\$587	117%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,423	\$148,142	\$130,625	\$12,095	\$115,952	\$4,199,115
2016	127,966	\$310,081	\$286,227	\$24,136	\$241,740	\$4,440,573
2017	122,616	\$318,135	\$305,503	\$24,712	\$255,675	\$4,684,168
2018	117,354	\$300,521	\$321,277	\$25,902	\$268,655	\$4,906,165
2019	112,132	\$283,711	\$333,107	\$26,865	\$280,526	\$5,110,430
2020	106,934	\$267,328	\$344,676	\$27,341	\$291,444	\$5,297,184
2021	101,789	\$251,364	\$357,207	\$27,926	\$301,333	\$5,464,748
2022	96,723	\$235,964	\$369,335	\$28,066	\$310,150	\$5,613,463
2023	91,739	\$221,214	\$379,443	\$28,128	\$317,953	\$5,745,058
2024	86,808	\$207,031	\$387,302	\$28,169	\$324,860	\$5,861,479
2025	81,911	\$193,183	\$395,650	\$28,203	\$330,908	\$5,961,717
2035	38,400	\$80,094	\$461,181	\$22,944	\$335,380	\$5,961,112
2045	10,386	\$18,384	\$334,217	\$10,564	\$290,752	\$5,183,743
2055	1,452	\$2,151	\$124,727	\$2,835	\$334,753	\$6,094,571
2065	105	\$123	\$21,538	\$1,652	\$534,468	\$9,818,266
2075	6	\$2	\$1,172	\$1,566	\$456,521	\$16,559,222

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,499,006	\$14,943,442	\$804,330	\$23,730,246
<b>Present Value as of June 30, 2015</b>	\$2,803,424	\$5,919,542	\$375,085	\$5,519,910

## Mortality Rates Decreased by 10 Percent

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years if the mortality were to be 10 percent lower than expected.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
7.32%	\$215	106%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,824	\$148,485	\$130,090	\$12,113	\$115,964	\$4,199,986
2016	129,068	\$312,706	\$285,647	\$24,255	\$241,874	\$4,444,664
2017	124,330	\$323,093	\$306,408	\$24,995	\$256,026	\$4,692,381
2018	119,603	\$307,214	\$324,342	\$26,450	\$269,231	\$4,918,033
2019	114,857	\$291,817	\$338,701	\$27,658	\$281,277	\$5,124,769
2020	110,082	\$276,597	\$353,132	\$28,310	\$292,288	\$5,312,211
2021	105,306	\$261,575	\$368,842	\$29,093	\$302,151	\$5,478,002
2022	100,557	\$246,914	\$384,283	\$29,421	\$310,790	\$5,622,002
2023	95,842	\$232,732	\$397,598	\$29,660	\$318,242	\$5,745,719
2024	91,138	\$218,982	\$408,434	\$29,873	\$324,620	\$5,851,014
2025	86,433	\$205,448	\$419,810	\$30,083	\$329,947	\$5,936,515
2035	42,942	\$90,611	\$515,505	\$25,983	\$312,039	\$5,507,610
2045	12,596	\$22,718	\$398,300	\$12,958	\$206,608	\$3,604,829
2055	1,929	\$2,918	\$157,911	\$3,599	\$149,579	\$2,672,494
2065	150	\$183	\$29,490	\$1,756	\$195,419	\$3,578,797
2075	9	\$4	\$1,693	\$1,570	\$162,771	\$5,903,000

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,801,707	\$16,792,956	\$887,973	\$14,704,482
<b>Present Value as of June 30, 2015</b>	\$2,938,579	\$6,398,533	\$402,586	\$4,775,754

## “Best Case” Scenario

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years if the experience were to be better than expected for the key assumptions. Specifically, if the discount rate and expected return were to be 0.50 percent higher or 6.25 percent, if lapse rates were to be 0.25 percent higher, if mortality rates were to be higher by 10 percent, and if morbidity rates were 10 percent lower.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
53.46%	\$1,423	154%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,254	\$148,012	\$130,349	\$12,087	\$125,884	\$4,209,200
2016	127,480	\$309,190	\$281,262	\$24,083	\$263,491	\$4,476,535
2017	121,842	\$316,418	\$294,623	\$24,234	\$280,418	\$4,754,515
2018	116,318	\$298,127	\$304,987	\$24,612	\$296,849	\$5,019,892
2019	110,861	\$280,724	\$312,024	\$25,114	\$312,616	\$5,276,095
2020	105,454	\$263,832	\$319,169	\$25,489	\$327,854	\$5,523,123
2021	100,126	\$247,439	\$327,494	\$25,960	\$342,491	\$5,759,599
2022	94,902	\$231,682	\$335,802	\$25,993	\$356,495	\$5,985,981
2023	89,785	\$216,642	\$342,668	\$25,956	\$369,928	\$6,203,927
2024	84,743	\$202,232	\$347,792	\$25,899	\$382,915	\$6,415,384
2025	79,760	\$188,221	\$353,514	\$25,835	\$395,507	\$6,619,763
2035	36,454	\$76,055	\$398,681	\$20,333	\$497,060	\$8,273,953
2045	9,611	\$17,007	\$281,747	\$9,125	\$632,725	\$10,618,967
2055	1,309	\$1,937	\$102,565	\$2,481	\$998,510	\$16,923,700
2065	92	\$108	\$17,278	\$1,611	\$1,784,097	\$30,320,436
2075	5	\$2	\$917	\$1,564	\$1,606,767	\$53,813,278

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,385,107	\$13,049,459	\$731,864	\$59,131,752
<b>Present Value as of June 30, 2015</b>	\$2,662,019	\$4,987,343	\$329,401	\$8,067,361

## “Worst Case” Scenario

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years if the experience were to be worse than expected for the key assumptions. Specifically, if the discount rate and expected return were to be 0.50 percent lower or 5.25 percent, if lapse rates were to be 0.25 percent lower, if mortality rates were to be lower by 10 percent, and if morbidity rates were 10 percent higher.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
(29.70%)	(\$923)	82%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,994	\$148,615	\$130,367	\$12,121	\$106,007	\$4,189,876
2016	129,559	\$313,605	\$290,670	\$24,309	\$220,227	\$4,408,729
2017	125,118	\$324,841	\$317,534	\$25,489	\$231,650	\$4,622,197
2018	120,666	\$309,674	\$341,170	\$27,803	\$241,756	\$4,804,653
2019	116,171	\$294,912	\$360,688	\$29,517	\$250,349	\$4,959,709
2020	111,622	\$280,251	\$379,988	\$30,299	\$257,573	\$5,087,246
2021	107,050	\$265,711	\$400,429	\$31,227	\$263,319	\$5,184,620
2022	102,480	\$251,463	\$420,272	\$31,693	\$267,506	\$5,251,624
2023	97,922	\$237,628	\$437,433	\$32,064	\$270,171	\$5,289,926
2024	93,352	\$224,162	\$451,608	\$32,409	\$271,426	\$5,301,497
2025	88,757	\$210,846	\$466,260	\$32,754	\$271,287	\$5,284,615
2035	45,228	\$95,405	\$590,581	\$29,217	\$176,443	\$3,268,867
2045	13,609	\$24,548	\$467,965	\$14,967	(\$59,184)	(\$1,416,328)
2055	2,139	\$3,238	\$190,227	\$4,159	(\$322,666)	(\$6,563,214)
2065	171	\$209	\$36,428	\$1,828	(\$609,483)	(\$12,237,306)
2075	11	\$5	\$2,144	\$1,574	(\$508,009)	(\$20,113,341)

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,933,276	\$19,160,419	\$978,002	(\$8,985,937)
<b>Present Value as of June 30, 2015</b>	\$3,107,093	\$7,645,710	\$462,033	\$2,061,283



## APPENDIX B

### 60 Year Projection of Fund Balance for Additional Discount Rate Sensitivity Testing from New York Regulation 126

- SCENARIO 1 – BASE CASE..... B-1
- SCENARIO 2 – DISCOUNT RATE INCREASING 0.50 PERCENT FOR 10 YEARS..... B-2
- SCENARIO 3 – DISCOUNT RATE INCREASING 1 PERCENT FOR 5 YEARS THEN  
DECREASING 1 PERCENT FOR 5 YEARS ..... B-3
- SCENARIO 4 – DISCOUNT RATE INCREASED 3 PERCENT ..... B-4
- SCENARIO 5 – DISCOUNT RATE DECREASING 0.50 PERCENT FOR 10 YEARS..... B-5
- SCENARIO 6 – DISCOUNT RATE DECREASING 1 PERCENT FOR 5 YEARS THEN  
INCREASING 1 PERCENT FOR 5 YEARS..... B-6
- SCENARIO 7 – DISCOUNT RATE DECREASED 3 PERCENT ..... B-7



## Scenario 1 - Base Case

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years based on the actuarial assumptions used in this valuation. This is the same as the base scenario with a discount rate and expected return of 5.75 percent.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
14.44%	\$414	111%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,357	\$12,104	\$115,958	\$4,199,552
2016	128,515	\$311,392	\$285,938	\$24,196	\$241,807	\$4,442,617
2017	123,465	\$320,592	\$305,953	\$24,852	\$255,850	\$4,688,255
2018	118,463	\$303,816	\$322,789	\$26,172	\$268,941	\$4,912,051
2019	113,470	\$287,680	\$335,850	\$27,253	\$280,898	\$5,117,526
2020	108,473	\$271,845	\$348,801	\$27,813	\$291,861	\$5,304,619
2021	103,503	\$256,321	\$362,858	\$28,492	\$301,738	\$5,471,327
2022	98,586	\$241,261	\$376,568	\$28,721	\$310,469	\$5,617,768
2023	93,727	\$226,769	\$388,198	\$28,866	\$318,103	\$5,745,576
2024	88,901	\$212,779	\$397,461	\$28,987	\$324,756	\$5,856,664
2025	84,091	\$199,067	\$407,232	\$29,104	\$330,459	\$5,949,854
2035	40,541	\$85,027	\$486,729	\$24,366	\$324,328	\$5,746,457
2045	11,392	\$20,344	\$363,543	\$11,645	\$251,269	\$4,443,223
2055	1,663	\$2,487	\$139,480	\$3,169	\$248,522	\$4,501,338
2065	124	\$148	\$24,949	\$1,695	\$376,975	\$6,920,097
2075	7	\$3	\$1,391	\$1,568	\$320,124	\$11,611,214

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$15,795,363	\$843,050	\$19,529,950
<b>Present Value as of June 30, 2015</b>	\$2,867,982	\$6,143,592	\$388,016	\$5,172,655

## Scenario 2 - Discount Rate Increasing 0.50 Percent for 10 Years

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years under scenario 2 of the NY 7 interest rates scenarios.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
75.18%	\$1,879	185%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,357	\$12,104	\$115,958	\$4,199,552
2016	128,515	\$311,392	\$285,938	\$24,196	\$252,310	\$4,453,120
2017	123,465	\$320,592	\$305,953	\$24,852	\$289,885	\$4,732,793
2018	118,463	\$303,816	\$322,789	\$26,172	\$330,486	\$5,018,134
2019	113,470	\$287,680	\$335,850	\$27,253	\$374,293	\$5,317,003
2020	108,473	\$271,845	\$348,801	\$27,813	\$421,962	\$5,634,196
2021	103,503	\$256,321	\$362,858	\$28,492	\$473,988	\$5,973,155
2022	98,586	\$241,261	\$376,568	\$28,721	\$531,038	\$6,340,165
2023	93,727	\$226,769	\$388,198	\$28,866	\$594,110	\$6,743,979
2024	88,901	\$212,779	\$397,461	\$28,987	\$664,557	\$7,194,867
2025	84,091	\$199,067	\$407,232	\$29,104	\$726,328	\$7,683,926
2035	40,541	\$85,027	\$486,729	\$24,366	\$1,378,345	\$14,605,781
2045	11,392	\$20,344	\$363,543	\$11,645	\$2,956,116	\$31,617,117
2055	1,663	\$2,487	\$139,480	\$3,169	\$7,409,715	\$79,629,841
2065	124	\$148	\$24,949	\$1,695	\$19,526,324	\$210,013,982
2075	7	\$3	\$1,391	\$1,568	\$25,261,383	\$530,487,562

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$15,795,363	\$843,050	\$538,406,298
<b>Present Value as of June 30, 2015</b>	\$2,499,311	\$4,396,461	\$301,716	\$13,432,072

## Scenario 3 - Discount Rate Increasing 1 Percent for 5 Years then Decreasing 1 Percent for 5 Years

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years under scenario 3 of the NY 7 interest rates scenarios.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
44.48%	\$1,135	139%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,357	\$12,104	\$115,958	\$4,199,552
2016	128,515	\$311,392	\$285,938	\$24,196	\$262,789	\$4,463,599
2017	123,465	\$320,592	\$305,953	\$24,852	\$324,050	\$4,777,437
2018	118,463	\$303,816	\$322,789	\$26,172	\$393,126	\$5,125,418
2019	113,470	\$287,680	\$335,850	\$27,253	\$471,486	\$5,521,481
2020	108,473	\$271,845	\$348,801	\$27,813	\$561,529	\$5,978,240
2021	103,503	\$256,321	\$362,858	\$28,492	\$607,068	\$6,450,279
2022	98,586	\$241,261	\$376,568	\$28,721	\$590,167	\$6,876,419
2023	93,727	\$226,769	\$388,198	\$28,866	\$560,428	\$7,246,551
2024	88,901	\$212,779	\$397,461	\$28,987	\$518,489	\$7,551,371
2025	84,091	\$199,067	\$407,232	\$29,104	\$465,320	\$7,779,422
2035	40,541	\$85,027	\$486,729	\$24,366	\$498,324	\$8,946,475
2045	11,392	\$20,344	\$363,543	\$11,645	\$555,598	\$10,040,233
2055	1,663	\$2,487	\$139,480	\$3,169	\$780,810	\$14,290,823
2065	124	\$148	\$24,949	\$1,695	\$1,307,978	\$24,042,456
2075	7	\$3	\$1,391	\$1,568	\$1,122,933	\$40,733,615

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$15,795,363	\$843,050	\$48,652,351
<b>Present Value as of June 30, 2015</b>	\$2,551,518	\$5,162,663	\$331,649	\$7,708,961

## Scenario 4 – Discount Rate Increased 3 Percent

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years under scenario 4 of the NY 7 interest rates scenarios.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
77.47%	\$1,837	182%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,357	\$12,104	\$175,206	\$4,258,800
2016	128,515	\$311,392	\$285,938	\$24,196	\$373,151	\$4,633,209
2017	123,465	\$320,592	\$305,953	\$24,852	\$406,015	\$5,029,012
2018	118,463	\$303,816	\$322,789	\$26,172	\$439,083	\$5,422,950
2019	113,470	\$287,680	\$335,850	\$27,253	\$472,172	\$5,819,700
2020	108,473	\$271,845	\$348,801	\$27,813	\$505,598	\$6,220,528
2021	103,503	\$256,321	\$362,858	\$28,492	\$539,335	\$6,624,834
2022	98,586	\$241,261	\$376,568	\$28,721	\$573,418	\$7,034,225
2023	93,727	\$226,769	\$388,198	\$28,866	\$608,048	\$7,451,978
2024	88,901	\$212,779	\$397,461	\$28,987	\$643,548	\$7,881,857
2025	84,091	\$199,067	\$407,232	\$29,104	\$680,124	\$8,324,712
2035	40,541	\$85,027	\$486,729	\$24,366	\$1,134,620	\$13,882,358
2045	11,392	\$20,344	\$363,543	\$11,645	\$2,068,973	\$25,535,619
2055	1,663	\$2,487	\$139,480	\$3,169	\$4,445,364	\$55,179,906
2065	124	\$148	\$24,949	\$1,695	\$10,180,231	\$126,512,695
2075	7	\$3	\$1,391	\$1,568	\$11,520,768	\$280,490,745

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$15,795,363	\$843,050	\$288,409,481
<b>Present Value as of June 30, 2015</b>	\$2,370,799	\$4,320,611	\$291,284	\$12,271,082

## Scenario 5 – Discount Rate Decreasing 0.50 Percent for 10 Years

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years under scenario 5 of the NY 7 interest rates scenarios.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
(103.24%)	(\$3,639)	53%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,357	\$12,104	\$115,958	\$4,199,552
2016	128,515	\$311,392	\$285,938	\$24,196	\$231,280	\$4,432,090
2017	123,465	\$320,592	\$305,953	\$24,852	\$221,945	\$4,643,822
2018	118,463	\$303,816	\$322,789	\$26,172	\$208,488	\$4,807,165
2019	113,470	\$287,680	\$335,850	\$27,253	\$191,240	\$4,922,982
2020	108,473	\$271,845	\$348,801	\$27,813	\$170,889	\$4,989,102
2021	103,503	\$256,321	\$362,858	\$28,492	\$148,023	\$5,002,096
2022	98,586	\$241,261	\$376,568	\$28,721	\$123,332	\$4,961,400
2023	93,727	\$226,769	\$388,198	\$28,866	\$97,609	\$4,868,713
2024	88,901	\$212,779	\$397,461	\$28,987	\$71,673	\$4,726,718
2025	84,091	\$199,067	\$407,232	\$29,104	\$46,296	\$4,535,745
2035	40,541	\$85,027	\$486,729	\$24,366	\$10,519	\$1,196,341
2045	11,392	\$20,344	\$363,543	\$11,645	(\$21,179)	(\$3,021,580)
2055	1,663	\$2,487	\$139,480	\$3,169	(\$41,918)	(\$5,699,703)
2065	124	\$148	\$24,949	\$1,695	(\$50,790)	(\$6,835,674)
2075	7	\$3	\$1,391	\$1,568	(\$27,801)	(\$7,456,607)

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$15,795,363	\$843,050	\$462,129
<b>Present Value as of June 30, 2015</b>	\$3,524,532	\$10,652,412	\$588,600	\$764,537

## Scenario 6 - Discount Rate Decreasing 1 Percent for 5 Years then Increasing 1 Percent for 5 Years

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years under scenario 6 of the NY 7 interest rates scenarios.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
(16.01%)	(\$523)	89%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,357	\$12,104	\$115,958	\$4,199,552
2016	128,515	\$311,392	\$285,938	\$24,196	\$220,727	\$4,421,537
2017	123,465	\$320,592	\$305,953	\$24,852	\$188,170	\$4,599,494
2018	118,463	\$303,816	\$322,789	\$26,172	\$149,123	\$4,703,473
2019	113,470	\$287,680	\$335,850	\$27,253	\$105,255	\$4,733,305
2020	108,473	\$271,845	\$348,801	\$27,813	\$58,713	\$4,687,250
2021	103,503	\$256,321	\$362,858	\$28,492	\$57,646	\$4,609,867
2022	98,586	\$241,261	\$376,568	\$28,721	\$101,836	\$4,547,675
2023	93,727	\$226,769	\$388,198	\$28,866	\$144,719	\$4,502,098
2024	88,901	\$212,779	\$397,461	\$28,987	\$186,864	\$4,475,293
2025	84,091	\$199,067	\$407,232	\$29,104	\$228,855	\$4,466,879
2035	40,541	\$85,027	\$486,729	\$24,366	\$183,294	\$3,152,652
2045	11,392	\$20,344	\$363,543	\$11,645	\$4,592	(\$93,489)
2055	1,663	\$2,487	\$139,480	\$3,169	(\$182,930)	(\$3,433,626)
2065	124	\$148	\$24,949	\$1,695	(\$377,658)	(\$6,958,601)
2075	7	\$3	\$1,391	\$1,568	(\$330,601)	(\$11,994,237)

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$15,795,363	\$843,050	(\$4,075,501)
<b>Present Value as of June 30, 2015</b>	\$3,267,240	\$7,407,694	\$460,240	\$2,129,392

## Scenario 7 - Discount Rate Decreasing 3 Percent

The tables below contain information about the margin, funded status and expected cash flows for the next 60 years under scenario 7 of the NY 7 interest rates scenarios.

### Main Results

Margin as Percentage of the Present Value of Premiums	Margin (\$ in millions)	Funded Status
(67.22%)	(\$2,422)	63%

### Projected Cash Flows and Fund Balance Over the Next 60 years (\$ in thousands)

Calendar Year <sup>1</sup>	Lives	Expected Premiums	Expected Claims	Expenses	Investment Earnings	Fund Balance <sup>2</sup>
						\$4,077,741
2015	133,625	\$148,314	\$130,357	\$12,104	\$55,863	\$4,139,457
2016	128,515	\$311,392	\$285,938	\$24,196	\$113,995	\$4,254,710
2017	123,465	\$320,592	\$305,953	\$24,852	\$117,195	\$4,361,692
2018	118,463	\$303,816	\$322,789	\$26,172	\$119,641	\$4,436,188
2019	113,470	\$287,680	\$335,850	\$27,253	\$121,252	\$4,482,017
2020	108,473	\$271,845	\$348,801	\$27,813	\$122,102	\$4,499,350
2021	103,503	\$256,321	\$362,858	\$28,492	\$122,156	\$4,486,477
2022	98,586	\$241,261	\$376,568	\$28,721	\$121,391	\$4,443,840
2023	93,727	\$226,769	\$388,198	\$28,866	\$119,841	\$4,373,385
2024	88,901	\$212,779	\$397,461	\$28,987	\$117,569	\$4,277,286
2025	84,091	\$199,067	\$407,232	\$29,104	\$114,597	\$4,154,614
2035	40,541	\$85,027	\$486,729	\$24,366	\$43,317	\$1,401,149
2045	11,392	\$20,344	\$363,543	\$11,645	(\$74,152)	(\$2,947,691)
2055	1,663	\$2,487	\$139,480	\$3,169	(\$175,087)	(\$6,610,843)
2065	124	\$148	\$24,949	\$1,695	(\$252,809)	(\$9,458,777)
2075	7	\$3	\$1,391	\$1,568	(\$166,670)	(\$12,372,364)

Note:

- 1- Cash flows for 2015 and 2075 are for 6 months only.
- 2- Fund balances are as of the end of the Calendar Year, except for the opening balance which is as of June 30, 2015 and the last projected fund balance which is as of June 30, 2075.

### Total Sum of all cash Flows and Present Values (\$ in thousands)

	Expected Premiums	Expected Claims	Expenses	Investment Earnings
<b>Total Sum of Cash Flows</b>	\$4,641,936	\$15,795,363	\$843,050	(\$4,453,627)
<b>Present Value as of June 30, 2015</b>	\$3,603,476	\$9,548,399	\$555,107	(\$212,619)



# APPENDIX C

## Long-Term Care Model and Assumptions



## ***Model***

Projection results are based on 136,253 inforce participants as of June 30, 2015. CalPERS LTC business consists of facility-only and comprehensive coverage and includes a variety of elimination periods, benefit periods, and inflation coverage combinations. A summary of the model cells we used for projection purposes has been included as Appendix D. Projection results for each cell reflect output from two different models. The first model calculates the disabled life reserves and incurred but not reported claim liabilities. The second model generates base plan projections, premium waiver projections, and return-of-premium benefit projections.

## ***Assumptions***

### **Morbidity:**

*Claim Cost:* The claim cost assumption is derived using the expected claim costs developed by LTCG based on industry morbidity assumptions in 2005, adjusted to the extent credible by the aggregate experience of the CalPERS Long-Term Care Program. The valuation claim cost development process is described below:

- Step 1: Develop complete inception-to-date exposure and claims.
- Step 2: Create a set of experience-based select-and-ultimate factors that vary by issue-age band, duration, issue year, and underwriting type. Manual claim costs and selection factors are used to calculate expected claim costs. Then, the actual claim costs are compared to the expected claim costs in aggregate by underwriting type and duration. Scalar adjustment factors are then applied to the manual selection factors until the expected claim costs are close to the actual claim costs. The resulting scalar adjustment factors are applied to the manual selection factors to get the experience-based selection factors.
- Step 3: Use the experience-based selection factors developed in Step 2 to adjust the actual incurred claims in Step 1 to estimate the ultimate levels. Create the ultimate experience-based claim cost tables by using the adjusted incurred claims divided by the exposure in Step 1. The ultimate claim costs vary by plan option, gender and attained age.
- Step 4: Develop the final valuation claim cost tables by credibility weighting the experience-based claim costs developed in Step 3 with the manual claim costs for attained ages between 38 and 97. Use manual claim costs for attained ages 37 and younger and 98 and older.

*Claim Payment Distribution:* These vary by age at claim incurral, gender, plan, benefit period, and claim duration. They were updated for this valuation to reflect emerging experience and were developed to be consistent with current liability/reserve levels.

*Morbidity Improvement:* Consistent with population experience and relevant actuarial documentation and practice, we assumed that future morbidity would improve for 20 years from the valuation date. Because of the relationship between mortality and morbidity improvement, we assumed the amount of morbidity improvement would be the same as the mortality improvement, but we set the maximum morbidity improvement at 1.25 percent.

*Inflation Adjustment:* Appropriate morbidity adjustments are made for policies with inflation protection.

*Adjustments to Reflect Individuals Already on Claim:* These vary by benefit period, inflation coverage, gender, issue age and duration. They are used to adjust the assumed claim costs to be on an exposure basis consistent with that used in the projection model.

### **Mortality**

The following is a summary of the process we utilized to determine the appropriate mortality assumption.

Generally, deaths are not consistently reported in LTC insurance, and therefore it is customary to compare the historical inforce file to a Social Security Database to properly identify those that have died rather than those that have lapsed coverage. Accurate mortality assumptions are important when projecting future terminations within a LTC block because, as the block ages, mortality becomes a greater proportion of total terminations.

The 1994 GAM industry table is used as the assumed industry level mortality assumption, and selection factors are developed based on CalPERS actual experience.

Then, actual mortality experience is compared to the expected assumption based on the 94 GAM and CalPERS selection factors to determine more refined experience-based adjustment factors that vary by attained-age for both active participants and participants on claim. These experience adjustment factors combined with the 94 GAM mortality table and CalPERS selection factors result in the CalPERS experienced-based mortality assumption.

Mortality improvement assumption development can be very challenging and often relies on a very large population base to complete a credible study. Therefore, it is common in the LTC industry to rely on industry mortality improvement scales rather than to independently calculate this assumption.

In 2014, by using the May 2014 Social Security Database, actual mortality experience, and the mortality improvement work done by CalPERS actuarial staff, UHAS did a complete mortality study and made the following refinements:

- Developed two separate mortality assumptions: one for participants not on claim, and one for those on claim;
- Revised selection factors based on CalPERS actual mortality experience; and
- Adopted the Pension Scale BB as the mortality improvement assumption for CalPERS LTC.

For the 2015 valuation, we assumed the same mortality assumption as used in the 2014 valuation.

The following were used for all projection cells as the assumed mortality:

- 1994 GAM table along with the Pension Scale BB as the mortality improvement factors used for the next twenty years.
- Selection factors by policy year as follows:
 

Policy Year 1:	0.35
Policy Year 2:	0.46
Policy Year 3:	0.55
Policy Year 4:	0.60
Policy Year 5:	0.62
Policy Year 6:	0.66
Policy Year 7:	0.72
Policy Year 8:	0.72
Policy Year 9:	0.72
Policy Year 10+:	0.72

### Lapse

Using actual total termination experience and the mortality assumptions described above, the lapse assumptions are developed. Starting with the actual total termination experience including both voluntary lapses and deaths, the revised assumed mortality is backed out to review actual voluntary lapse rates. The revised lapse assumptions are then developed to correspond to the observed actual lapses.

The following assumed voluntary lapse rates were used for all projection cells:

Policy Year	Age Group					
	<40	40-49	50-59	60-69	70-79	80+
1	4.7%	3.3%	2.7%	2.1%	2.2%	2.8%
2	3.6%	2.3%	1.9%	1.3%	1.3%	2.8%
3	3.5%	1.9%	1.5%	1.1%	1.3%	2.3%
4	2.8%	1.7%	1.3%	0.9%	1.3%	1.7%
5	2.8%	1.7%	1.2%	0.9%	1.3%	1.7%
6	2.8%	1.6%	1.2%	0.9%	1.3%	1.7%
7	2.8%	1.6%	1.2%	0.9%	1.3%	1.7%
8	2.8%	1.6%	1.2%	0.9%	1.3%	1.7%
9	2.4%	1.6%	1.0%	0.9%	1.3%	1.7%
10	2.4%	1.6%	0.9%	0.9%	1.3%	1.7%
11	2.3%	1.4%	0.9%	0.9%	1.1%	1.7%
12	2.3%	1.4%	0.8%	0.9%	1.1%	1.7%
13	2.3%	1.4%	0.8%	0.9%	1.1%	1.7%
14+	2.3%	1.2%	0.8%	0.9%	1.1%	1.7%

No shock lapse rates were applied for rate increases in 2015 and 2016.

### **Expenses**

We used the following expense assumptions:

- The Third Party Administration (TPA) costs reflect the new five year contract with LTCCG which started effective in 2013. For expenses after the five year contract, we increased all non-claim expense items using an annual inflation rate of 2.75 percent.
- The administration cost in the new administration contract with LTCCG is based on per participant per month. After the five year period, the administration fees are switched back to claim adjudication costs which are consistent with past valuation costs associated with claims.
- Starting in January 2019, we reduced the inflated fixed dollar fees by the ratio of current premium to the prior year premium. The intent of this is to adjust for the fact that if the Program volume declines, expenses would need to decline as well.
- We assumed CalPERS non-TPA expenses would be \$350,021 per month through December of 2015 and increase 2.75 percent for inflation each January thereafter.
- A new option for participants allowing one-time premium payments using credit cards has been available in 2014. The credit card fee assumes that each year 1.5 percent of participants will use a credit card to pay their premiums at a cost of 3 percent of premium resulting in a total 0.045 percent of premium annual expense fee for credit cards.

### **Discount Rate**

We assumed 5.75 percent discount rate for all projection years.

### **Rate Increase Related Assumptions:**

Since the plan conversion change letters were received for the 36% rate increase in 2015 and 2016 respectively, we used the actual conversions in the projection and assumed no shock lapses for the 2016 rate increase. There is only one assumption that is related to the rate increase which is the anti-selection factors.

A rate increase may prompt healthier participants to lapse or reduce benefits to lower the impact of a rate increase. Therefore, the total risk pool will be less healthy after a rate increase.

Anti-selection is difficult to measure, and we have not attempted to determine the actual anti-selection experienced by CalPERS. As a result, the suggested anti-selection factor is an estimate. The anti-selection factors are two times the shock lapse and grade down to 0 percent over 10 years. This anti-selection factor development is consistent with the 2013 and 2014 assumed rates.

Anti-selection factors vary by benefit plan and are applied to the 2013, 2014, and 2015 conversions. See the table below for the groups that received or will receive the anti-selection factors.

For those policies accepting the rate increase, the following anti-selection factors are applied to increase the future morbidity risk.

LTC1, Lifetime, Inflation Receiving the 85% Premium Rate Increase Anti-Selection Factors Related to Shock Lapse and Conversions		
Selection Period	Calendar Year	Base Scenario
1	2015	1.206
2	2016	1.181
3	2017	1.157
4	2018	1.133
5	2019	1.109
6	2020	1.085
7	2021	1.061
8	2022	1.038
9	2023	1.014
10	2024	1.005
11+	2025+	1.000

All Other Plans Receiving the 85% Premium Rate Increase Anti-Selection Factors Related to Shock Lapse		
Selection Period	Calendar Year	Base Scenario
1	2015	1.034
2	2016	1.030
3	2017	1.026
4	2018	1.022
5	2019	1.018
6	2020	1.014
7	2021	1.010
8	2022	1.006
9	2023	1.002
10+	2024+	1.000

LTC2, Lifetime, Inflation Receiving the 85% Premium Rate Increase Anti-Selection Factors Related to Shock Lapse and Conversions		
Selection Period	Calendar Year	Base Scenario
1	2015	1.176
2	2016	1.157
3	2017	1.137
4	2018	1.118
5	2019	1.099
6	2020	1.080
7	2021	1.061
8	2022	1.043
9	2023	1.024
10	2024	1.007
11+	2025+	1.000

For those policies converting to a 10 year Benefit Increase Option, the following anti-selection factors are applied to decrease the future morbidity risk because it is assumed healthier participants are more likely to lower their benefits to pay lower premiums when there is a rate increase.

LTC1, 10-year Benefit Increase Option Selection factors		
Selection Period	Calendar Year	Base Scenario
1	2015	0.827
2	2016	0.847
3	2017	0.867
4	2018	0.887
5	2019	0.907
6	2020	0.927
7	2021	0.947
8	2022	0.967
9	2023	0.987
10	2024	0.995
11+	2025+	1.000

LTC2, 10-year Benefit Increase Option Selection factors		
Selection Period	Calendar Year	Base Scenario
1	2013	0.810
2	2014	0.830
3	2015	0.850
4	2016	0.870
5	2017	0.890
6	2018	0.910
7	2019	0.930
8	2020	0.950
9	2021	0.970
10	2022	0.990
11+	2023+	1.000



# APPENDIX D

## Summary of Model Cells



**CalPERS LTC Program**  
**Summary of Model Cells Included in 6/30/2015 Projection<sup>1</sup>**

Product Series	Plan Type	HHC	ALF	Benefit Period	Elimination Period	Inflation	Underwriting Type	Policy Count	Expected Annual Premium
LTC1	Comprehensive	50% HHC	50% ALF	3 Year	90 Day EP	No Inflation	LF	8,395	14,693,274
LTC1	Comprehensive	50% HHC	50% ALF	3 Year	90 Day EP	No Inflation	MGI	2,487	3,004,555
LTC1	Comprehensive	50% HHC	50% ALF	3 Year	90 Day EP	No Inflation	SF	2,196	2,711,833
LTC1	Comprehensive	50% HHC	50% ALF	3 Year	90 Day EP	Inflation	LF	2,349	6,032,864
LTC1	Comprehensive	50% HHC	50% ALF	3 Year	90 Day EP	Inflation	MGI	827	1,506,583
LTC1	Comprehensive	50% HHC	50% ALF	3 Year	90 Day EP	Inflation	SF	704	1,366,102
LTC1	Comprehensive	50% HHC	50% ALF	6 Year	90 Day EP	No Inflation	LF	8,441	14,429,680
LTC1	Comprehensive	50% HHC	50% ALF	6 Year	90 Day EP	No Inflation	MGI	4,270	5,516,398
LTC1	Comprehensive	50% HHC	50% ALF	6 Year	90 Day EP	No Inflation	SF	3,719	4,774,667
LTC1	Comprehensive	50% HHC	50% ALF	6 Year	90 Day EP	Inflation	LF	1,289	3,703,970
LTC1	Comprehensive	50% HHC	50% ALF	6 Year	90 Day EP	Inflation	MGI	699	1,458,101
LTC1	Comprehensive	50% HHC	50% ALF	6 Year	90 Day EP	Inflation	SF	629	1,507,502
LTC1	Comprehensive	50% HHC	50% ALF	10 Year	90 Day EP	No Inflation	LF	9,482	24,993,038
LTC1	Comprehensive	50% HHC	50% ALF	10 Year	90 Day EP	No Inflation	MGI	4,324	9,876,633
LTC1	Comprehensive	50% HHC	50% ALF	10 Year	90 Day EP	No Inflation	SF	3,728	8,239,274
LTC1	Comprehensive	50% HHC	50% ALF	Lifetime	90 Day EP	No Inflation	LF	3,317	10,438,561
LTC1	Comprehensive	50% HHC	50% ALF	Lifetime	90 Day EP	No Inflation	MGI	2,351	4,605,792
LTC1	Comprehensive	50% HHC	50% ALF	Lifetime	90 Day EP	No Inflation	SF	1,583	3,124,792
LTC1	Comprehensive	50% HHC	50% ALF	Lifetime	90 Day EP	Inflation	LF	10,259	44,663,024
LTC1	Comprehensive	50% HHC	50% ALF	Lifetime	90 Day EP	Inflation	MGI	7,814	25,272,079
LTC1	Comprehensive	50% HHC	50% ALF	Lifetime	90 Day EP	Inflation	SF	5,298	18,291,278
LTC1	Facilities Only		50% ALF	3 Year	90 Day EP	No Inflation	LF	4,539	6,341,768
LTC1	Facilities Only		50% ALF	3 Year	90 Day EP	No Inflation	MGI	849	787,480
LTC1	Facilities Only		50% ALF	3 Year	90 Day EP	No Inflation	SF	808	783,606
LTC1	Facilities Only		50% ALF	3 Year	90 Day EP	Inflation	LF	1,005	2,173,993
LTC1	Facilities Only		50% ALF	3 Year	90 Day EP	Inflation	MGI	298	430,402
LTC1	Facilities Only		50% ALF	3 Year	90 Day EP	Inflation	SF	295	466,979
LTC1	Facilities Only		50% ALF	6 Year	90 Day EP	No Inflation	LF	3,310	5,323,467
LTC1	Facilities Only		50% ALF	6 Year	90 Day EP	No Inflation	MGI	692	775,115
LTC1	Facilities Only		50% ALF	6 Year	90 Day EP	No Inflation	SF	798	883,947
LTC1	Facilities Only		50% ALF	6 Year	90 Day EP	Inflation	LF	288	786,910
LTC1	Facilities Only		50% ALF	6 Year	90 Day EP	Inflation	MGI	85	168,536
LTC1	Facilities Only		50% ALF	6 Year	90 Day EP	Inflation	SF	134	272,709
LTC1	Facilities Only		50% ALF	10 Year	90 Day EP	No Inflation	LF	2,793	6,617,977
LTC1	Facilities Only		50% ALF	10 Year	90 Day EP	No Inflation	MGI	674	1,170,355
LTC1	Facilities Only		50% ALF	10 Year	90 Day EP	No Inflation	SF	813	1,410,781
LTC1	Facilities Only		50% ALF	Lifetime	90 Day EP	No Inflation	LF	1,270	3,291,008
LTC1	Facilities Only		50% ALF	Lifetime	90 Day EP	No Inflation	MGI	281	444,326
LTC1	Facilities Only		50% ALF	Lifetime	90 Day EP	No Inflation	SF	237	395,528
LTC1	Facilities Only		50% ALF	Lifetime	90 Day EP	Inflation	LF	2,266	8,609,466
LTC1	Facilities Only		50% ALF	Lifetime	90 Day EP	Inflation	MGI	754	2,065,631
LTC1	Facilities Only		50% ALF	Lifetime	90 Day EP	Inflation	SF	773	2,119,176
LTC1	Partnership	50% HHC	50% ALF	1 Year	30 Day EP	Inflation	LF	1,178	1,338,578
LTC1	Partnership	50% HHC	50% ALF	1 Year	30 Day EP	Inflation	MGI	323	222,021
LTC1	Partnership	50% HHC	50% ALF	1 Year	30 Day EP	Inflation	SF	267	183,887
LTC1	Partnership	50% HHC	50% ALF	2 Year	30 Day EP	Inflation	LF	1,803	3,265,714
LTC1	Partnership	50% HHC	50% ALF	2 Year	30 Day EP	Inflation	MGI	532	625,446
LTC1	Partnership	50% HHC	50% ALF	2 Year	30 Day EP	Inflation	SF	577	639,178
LTC1	Partnership	50% HHC	50% ALF	6 Mo	30 Day EP	Inflation	LF	111	106,580
LTC1	Partnership	50% HHC	50% ALF	6 Mo	30 Day EP	Inflation	MGI	18	9,527
LTC1	Partnership	50% HHC	50% ALF	6 Mo	30 Day EP	Inflation	SF	9	5,306
<b>LTC1 Subtotal</b>								<b>111,941</b>	<b>261,925,394</b>

Abbreviation      Description  
ALF                  Assisted Living Facility  
HHC                  Home Health Care  
  
LF U/W              Long From Underwriting  
MGI U/W            Modified Guaranteed Issue Underwriting  
SF U/W              Short Form Underwriting

Note:

1- Model cells include all inforce data as of June 30, 2015. All benefits including selected optional benefits are valued in the projection except Benefit Increase Options.

**CalPERS LTC Program**  
**Summary of Model Cells Included in 6/30/2015 Projection<sup>1</sup>**

Product Series	Plan Type	HHC	ALF	Benefit Period	Elimination Period	Inflation	Underwriting Type	Policy Count	Expected Annual Premium
LTC2	Comprehensive	50% HHC	70% ALF	3 Year	90 Day EP	No Inflation	LF	1,380	2,067,686
LTC2	Comprehensive	50% HHC	70% ALF	3 Year	90 Day EP	No Inflation	MGI - Conversions	9	15,514
LTC2	Comprehensive	50% HHC	70% ALF	3 Year	90 Day EP	No Inflation	SF - Conversions	9	12,259
LTC2	Comprehensive	50% HHC	70% ALF	3 Year	90 Day EP	Inflation	LF	311	895,073
LTC2	Comprehensive	50% HHC	70% ALF	3 Year	90 Day EP	Inflation	MGI - Conversions	2	5,637
LTC2	Comprehensive	50% HHC	70% ALF	3 Year	90 Day EP	Inflation	SF - Conversions	3	11,654
LTC2	Comprehensive	50% HHC	70% ALF	6 Year	90 Day EP	No Inflation	LF	1,312	2,150,510
LTC2	Comprehensive	50% HHC	70% ALF	6 Year	90 Day EP	No Inflation	MGI - Conversions	18	33,785
LTC2	Comprehensive	50% HHC	70% ALF	6 Year	90 Day EP	No Inflation	SF - Conversions	17	30,761
LTC2	Comprehensive	50% HHC	70% ALF	6 Year	90 Day EP	Inflation	LF	30	105,214
LTC2	Comprehensive	50% HHC	70% ALF	6 Year	90 Day EP	Inflation	SF - Conversions	1	4,177
LTC2	Comprehensive	50% HHC	70% ALF	10 Year	90 Day EP	No Inflation	LF	1,473	3,371,716
LTC2	Comprehensive	50% HHC	70% ALF	10 Year	90 Day EP	No Inflation	MGI - Conversions	11	26,217
LTC2	Comprehensive	50% HHC	70% ALF	10 Year	90 Day EP	No Inflation	SF - Conversions	11	30,769
LTC2	Comprehensive	50% HHC	70% ALF	Lifetime	90 Day EP	No Inflation	LF	811	1,958,455
LTC2	Comprehensive	50% HHC	70% ALF	Lifetime	90 Day EP	No Inflation	MGI - Conversions	6	12,093
LTC2	Comprehensive	50% HHC	70% ALF	Lifetime	90 Day EP	No Inflation	SF - Conversions	4	12,116
LTC2	Comprehensive	50% HHC	70% ALF	Lifetime	90 Day EP	Inflation	LF	1,402	5,780,165
LTC2	Comprehensive	50% HHC	70% ALF	Lifetime	90 Day EP	Inflation	MGI - Conversions	9	49,894
LTC2	Comprehensive	50% HHC	70% ALF	Lifetime	90 Day EP	Inflation	SF - Conversions	11	42,533
LTC2	Facilities Only		70% ALF	3 Year	90 Day EP	No Inflation	LF	297	353,633
LTC2	Facilities Only		70% ALF	3 Year	90 Day EP	Inflation	LF	50	126,270
LTC2	Facilities Only		70% ALF	6 Year	90 Day EP	No Inflation	LF	247	310,373
LTC2	Facilities Only		70% ALF	6 Year	90 Day EP	Inflation	LF	14	42,336
LTC2	Facilities Only		70% ALF	10 Year	90 Day EP	No Inflation	LF	235	392,299
LTC2	Facilities Only		70% ALF	10 Year	90 Day EP	No Inflation	MGI - Conversions	1	2,761
LTC2	Facilities Only		70% ALF	10 Year	90 Day EP	No Inflation	SF - Conversions	1	1,542
LTC2	Facilities Only		70% ALF	Lifetime	90 Day EP	No Inflation	LF	81	176,024
LTC2	Facilities Only		70% ALF	Lifetime	90 Day EP	Inflation	LF	160	469,197
LTC2	Facilities Only		70% ALF	Lifetime	90 Day EP	Inflation	MGI - Conversions	1	6,610
LTC2	Partnership	50% HHC	70% ALF	1 Year	30 Day EP	Inflation	LF	81	100,262
LTC2	Partnership	50% HHC	70% ALF	2 Year	30 Day EP	Inflation	LF	159	326,360
LTC2	Partnership	50% HHC	70% ALF	6 Mo	30 Day EP	Inflation	LF	10	9,607
<b>LTC2 Subtotal</b>								<b>8,167</b>	<b>18,933,501</b>

<u>Abbreviation</u>	<u>Description</u>
ALF	Assisted Living Facility
HHC	Home Health Care
LF U/W	Long From Underwriting
MGI U/W	Modified Guaranteed Issue Underwriting
SF U/W	Short Form Underwriting

Note:

1- Model cells include all inforce data as of June 30, 2015. All benefits including selected optional benefits are valued in the projection except Benefit Increase Options.

**CalPERS LTC Program**  
**Summary of Model Cells Included in 6/30/2013 Projection<sup>1</sup>**

Product Series	Plan Type	HHC	ALF	Benefit Period	Elimination Period	Inflation	Underwriting Type	Policy Count	Expected Annual Premium
LTC3	Comprehensive	70% HHC	70% ALF	3 Year	90 Day EP	No Inflation	LF	783	1,107,314
LTC3	Comprehensive	70% HHC	70% ALF	3 Year	90 Day EP	No Inflation	MGI - Conversions	63	62,014
LTC3	Comprehensive	70% HHC	70% ALF	3 Year	90 Day EP	No Inflation	SF - Conversions	46	34,218
LTC3	Comprehensive	70% HHC	70% ALF	3 Year	90 Day EP	Inflation	LF	2,124	4,283,507
LTC3	Comprehensive	70% HHC	70% ALF	3 Year	90 Day EP	Inflation	MGI - Conversions	338	461,882
LTC3	Comprehensive	70% HHC	70% ALF	3 Year	90 Day EP	Inflation	SF - Conversions	367	541,847
LTC3	Comprehensive	70% HHC	70% ALF	6 Year	90 Day EP	No Inflation	LF	2,524	4,313,874
LTC3	Comprehensive	70% HHC	70% ALF	6 Year	90 Day EP	No Inflation	MGI - Conversions	585	652,060
LTC3	Comprehensive	70% HHC	70% ALF	6 Year	90 Day EP	No Inflation	SF - Conversions	456	541,397
LTC3	Comprehensive	70% HHC	70% ALF	6 Year	90 Day EP	Inflation	LF	2,397	6,365,628
LTC3	Comprehensive	70% HHC	70% ALF	6 Year	90 Day EP	Inflation	MGI - Conversions	458	908,911
LTC3	Comprehensive	70% HHC	70% ALF	6 Year	90 Day EP	Inflation	SF - Conversions	410	871,517
LTC3	Comprehensive	70% HHC	70% ALF	10 Year	90 Day EP	No Inflation	LF	6	11,351
LTC3	Comprehensive	70% HHC	70% ALF	Lifetime	90 Day EP	No Inflation	LF	1,039	2,181,465
LTC3	Comprehensive	70% HHC	70% ALF	Lifetime	90 Day EP	No Inflation	MGI - Conversions	21	51,910
LTC3	Comprehensive	70% HHC	70% ALF	Lifetime	90 Day EP	No Inflation	SF - Conversions	14	27,986
LTC3	Comprehensive	70% HHC	70% ALF	Lifetime	90 Day EP	Inflation	LF	1,131	4,156,310
LTC3	Comprehensive	70% HHC	70% ALF	Lifetime	90 Day EP	Inflation	MGI - Conversions	8	45,812
LTC3	Comprehensive	70% HHC	70% ALF	Lifetime	90 Day EP	Inflation	SF - Conversions	6	21,633
LTC3	Facilities Only		70% ALF	3 Year	90 Day EP	No Inflation	LF	266	349,255
LTC3	Facilities Only		70% ALF	3 Year	90 Day EP	No Inflation	MGI - Conversions	16	11,850
LTC3	Facilities Only		70% ALF	3 Year	90 Day EP	No Inflation	SF - Conversions	20	12,396
LTC3	Facilities Only		70% ALF	3 Year	90 Day EP	Inflation	LF	487	858,740
LTC3	Facilities Only		70% ALF	3 Year	90 Day EP	Inflation	MGI - Conversions	64	77,618
LTC3	Facilities Only		70% ALF	3 Year	90 Day EP	Inflation	SF - Conversions	115	153,023
LTC3	Facilities Only		70% ALF	6 Year	90 Day EP	No Inflation	LF	700	1,073,403
LTC3	Facilities Only		70% ALF	6 Year	90 Day EP	No Inflation	MGI - Conversions	66	60,561
LTC3	Facilities Only		70% ALF	6 Year	90 Day EP	No Inflation	SF - Conversions	89	81,987
LTC3	Facilities Only		70% ALF	6 Year	90 Day EP	Inflation	LF	185	440,505
LTC3	Facilities Only		70% ALF	6 Year	90 Day EP	Inflation	MGI - Conversions	15	30,440
LTC3	Facilities Only		70% ALF	6 Year	90 Day EP	Inflation	SF - Conversions	24	47,223
LTC3	Facilities Only		70% ALF	Lifetime	90 Day EP	No Inflation	LF	146	242,417
LTC3	Facilities Only		70% ALF	Lifetime	90 Day EP	No Inflation	MGI - Conversions	1	4,259
LTC3	Facilities Only		70% ALF	Lifetime	90 Day EP	Inflation	LF	178	453,132
LTC3	Facilities Only		70% ALF	Lifetime	90 Day EP	Inflation	MGI - Conversions	1	1,521
LTC3	Partnership	70% HHC	70% ALF	1 Year	30 Day EP	Inflation	LF	38	55,440
LTC3	Partnership	70% HHC	70% ALF	2 Year	30 Day EP	Inflation	LF	65	150,476
<b>LTC3 Subtotal</b>								<b>15,252</b>	<b>30,744,879</b>
LTC4	Comprehensive	100% HHC	100% ALF	3 Year	90 Day EP	No Inflation	LF	44	91,753
LTC4	Comprehensive	100% HHC	100% ALF	3 Year	90 Day EP	Inflation	LF	376	959,845
LTC4	Comprehensive	100% HHC	100% ALF	6 Year	90 Day EP	No Inflation	LF	29	91,345
LTC4	Comprehensive	100% HHC	100% ALF	6 Year	90 Day EP	Inflation	LF	276	826,929
LTC4	Comprehensive	100% HHC	100% ALF	10 Year	90 Day EP	No Inflation	LF	32	100,354
LTC4	Comprehensive	100% HHC	100% ALF	10 Year	90 Day EP	Inflation	LF	124	474,083
LTC4	Partnership	100% HHC	100% ALF	1 Year	30 Day EP	No Inflation	LF	3	7,734
LTC4	Partnership	100% HHC	100% ALF	2 Year	30 Day EP	Inflation	LF	9	36,801
<b>LTC4 Subtotal</b>								<b>893</b>	<b>2,588,845</b>
<b>Grand Total</b>								<b>136,253</b>	<b>314,192,619</b>

**Abbreviation**      **Description**  
ALF                      Assisted Living Facility  
HHC                      Home Health Care  
  
LF U/W                  Long From Underwriting  
MGI U/W                Modified Guaranteed Issue Underwriting  
SF U/W                  Short Form Underwriting

Note:  
1- Model cells include all inforce data as of June 30, 2015. All benefits including selected optional benefits are valued in the projection except Benefit Increase Options.



# APPENDIX E

## Demographic Information



## ***Data***

We relied on the inforce data and claim information supplied by the third party administrator LTCCG. We have evaluated that data for reasonableness and consistency. The principal materials upon which we relied were provided by LTCCG and internal financial reports include:

1. Data extracts from LTCCG administrative system
2. Financial statements
3. Plan descriptions

The Actuarial Valuation considers the number and demographic characteristics of covered participants, including active participants and on-claim participants. This section presents a summary of significant statistical data on these participant groups.

Future plan costs are affected by attained age, years in plan and benefits chosen. In this year's valuation, there were 144,933 inforce participants with an average attained age of 72.3 and average duration of 13.33.

## ***Inforce Participants as of 6/30/2015 - Demographics and Selected Benefit Options***

The following distributions for all inforce participants as of June 30, 2015 are included in Appendix E:

- By benefit period and elimination period
- By issue-age and attained-age
- By coverage
- By inflation option
- By gender
- By premium mode
- By underwriting type
- By product series

**CalPERS LTC Program**  
**Distributions of Business Inforce as of 6/30/2015**  
**with Adjustments Reflecting Conversions as of 7/31/2015**

**By Benefit Period and Elimination Period**

Benefit Period	Elimination Period	Policy Count		Expected Annual Premium	
		Count	Percent	Premium	Percent
6 Month	30 Day	148	0%	131,019	0%
1 Year	30 Day	1,890	1%	1,907,923	1%
2 Year	30 Day	3,145	2%	5,043,975	2%
3 Year	90 Day	31,922	23%	52,792,428	17%
6 Year	90 Day	34,207	25%	58,583,937	19%
10 Year	90 Day	23,708	17%	56,719,149	18%
Lifetime	90 Day	41,233	30%	139,014,189	44%
<b>Total</b>		<b>136,253</b>	<b>100%</b>	<b>314,192,619</b>	<b>100%</b>

**By Issue-Age Band and Gender**

Issue-Age Band	Policy Count				Expected Annual Premium			
	Females	Males	Total	Percent	Females	Males	Total	Percent
< 30	419	224	643	0%	406,701	223,472	630,173	0%
30-39	4,147	2,478	6,625	5%	5,021,911	3,008,698	8,030,609	3%
40-44	5,691	3,102	8,793	6%	8,362,605	4,584,696	12,947,301	4%
45-49	10,820	5,901	16,721	12%	18,504,405	10,130,138	28,634,544	9%
50-54	16,321	9,666	25,987	19%	32,041,576	19,073,712	51,115,288	16%
55-59	17,868	11,686	29,554	22%	41,064,917	27,319,150	68,384,067	22%
60-64	14,104	10,616	24,720	18%	37,363,995	28,675,140	66,039,134	21%
65-69	8,534	6,272	14,806	11%	26,357,048	19,840,644	46,197,692	15%
70-74	4,090	2,306	6,396	5%	14,700,046	8,436,086	23,136,132	7%
75-79	1,252	521	1,773	1%	5,419,793	2,322,244	7,742,036	2%
80-84	177	47	224	0%	986,739	261,625	1,248,364	0%
85-89	9	2	11	0%	68,899	18,379	87,278	0%
90-94	0	0	0	0%	0	0	0	0%
95+	0	0	0	0%	0	0	0	0%
<b>Total</b>	<b>83,432</b>	<b>52,821</b>	<b>136,253</b>	<b>100%</b>	<b>190,298,635</b>	<b>123,893,984</b>	<b>314,192,619</b>	<b>100%</b>

By Attained Age and Gender

Attained Age	Policy Count				Expected Annual Premium			
	Females	Males	Total	Percent	Females	Males	Total	Percent
<30	16	5	21	0%	13,957	3,904	17,861	0%
34	7	0	7	0%	8,904	0	8,904	0%
35	6	2	8	0%	8,871	2,067	10,938	0%
36	13	11	24	0%	10,958	13,621	24,580	0%
37	34	22	56	0%	37,741	27,925	65,667	0%
38	12	7	19	0%	12,711	5,638	18,350	0%
39	23	11	34	0%	21,583	11,933	33,516	0%
40	55	31	86	0%	52,554	27,650	80,204	0%
41	47	30	77	0%	42,947	32,960	75,907	0%
42	54	32	86	0%	56,277	31,839	88,117	0%
43	98	44	142	0%	129,821	55,734	185,555	0%
44	77	52	129	0%	87,170	60,216	147,386	0%
45	80	54	134	0%	93,758	64,321	158,079	0%
46	113	71	184	0%	120,581	80,291	200,872	0%
47	156	79	235	0%	206,099	112,818	318,917	0%
48	226	167	393	0%	309,272	209,223	518,495	0%
49	402	248	650	0%	492,001	301,127	793,128	0%
50	486	302	788	1%	611,480	378,882	990,362	0%
51	441	264	705	1%	551,846	339,347	891,193	0%
52	447	270	717	1%	584,600	358,361	942,961	0%
53	470	317	787	1%	700,479	443,607	1,144,086	0%
54	895	524	1,419	1%	1,213,110	711,472	1,924,583	1%
55	1452	782	2,234	2%	1,865,103	1,056,506	2,921,610	1%
56	1046	603	1,649	1%	1,426,246	816,660	2,242,906	1%
57	727	421	1,148	1%	1,107,564	629,622	1,737,186	1%
58	789	418	1,207	1%	1,253,880	692,971	1,946,851	1%
59	1,018	555	1,573	1%	1,654,251	937,558	2,591,809	1%
60	1,962	1,059	3,021	2%	3,097,863	1,600,004	4,697,866	1%
61	2,291	1,231	3,522	3%	3,586,398	1,903,137	5,489,536	2%
62	1,949	1,050	2,999	2%	3,281,820	1,857,768	5,139,588	2%
63	1,438	769	2,207	2%	2,609,718	1,425,799	4,035,517	1%
64	1,750	997	2,747	2%	3,226,684	1,914,083	5,140,767	2%
65	3,137	1,843	4,980	4%	5,552,675	3,369,996	8,922,670	3%
66	4,171	2,408	6,579	5%	7,735,533	4,381,391	12,116,924	4%
67	3,124	1,977	5,101	4%	6,097,574	3,894,894	9,992,467	3%
68	2,053	1,303	3,356	2%	4,312,160	2,787,312	7,099,472	2%
69	2,331	1,468	3,799	3%	4,951,794	3,223,480	8,175,275	3%
70	4,415	2,686	7,101	5%	9,098,761	5,715,560	14,814,321	5%
71	4,439	2,810	7,249	5%	9,518,704	6,033,361	15,552,065	5%
72	3,344	2,164	5,508	4%	7,548,696	5,010,272	12,558,968	4%
73	1,874	1,317	3,191	2%	4,558,581	3,252,991	7,811,572	2%
74	2,149	1,520	3,669	3%	5,393,826	3,889,037	9,282,863	3%
75	3,624	2,487	6,111	4%	8,612,360	6,054,096	14,666,457	5%
76	4,419	2,772	7,191	5%	10,613,451	6,987,188	17,600,640	6%
77	2,805	1,875	4,680	3%	7,065,415	4,916,240	11,981,654	4%
78	1,153	954	2,107	2%	3,181,800	2,612,224	5,794,024	2%
79	1,521	1,172	2,693	2%	4,188,295	3,242,560	7,430,855	2%
80	2,695	2,014	4,709	3%	7,102,826	5,418,677	12,521,503	4%
81	3,410	2,478	5,888	4%	9,193,545	6,737,547	15,931,091	5%
82	2,496	1,784	4,280	3%	7,327,648	5,233,913	12,561,561	4%
83	603	486	1,089	1%	1,904,071	1,607,396	3,511,468	1%
84	986	751	1,737	1%	3,098,800	2,343,323	5,442,122	2%
85	1,808	1,257	3,065	2%	5,499,360	3,904,495	9,403,855	3%
86	2,054	1,411	3,465	3%	6,426,508	4,534,486	10,960,994	3%
87	1,789	1,201	2,990	2%	5,787,697	4,032,747	9,820,444	3%
88	293	176	469	0%	1,089,894	629,107	1,719,001	1%
89	511	273	784	1%	1,812,950	1,017,416	2,830,365	1%
90	780	425	1,205	1%	2,666,451	1,441,536	4,107,987	1%
91	866	462	1,328	1%	3,006,965	1,724,314	4,731,279	2%
92	632	386	1,018	1%	2,409,667	1,436,233	3,845,900	1%
93	36	11	47	0%	220,803	75,121	295,924	0%
94	73	23	96	0%	356,989	142,266	499,255	0%
95	161	57	218	0%	755,438	249,303	1,004,742	0%
96	176	57	233	0%	799,425	254,478	1,053,903	0%
97	142	50	192	0%	642,071	209,208	851,279	0%
98	146	55	201	0%	662,752	223,394	886,146	0%
99+	636	280	916	1%	2,628,635	1,201,378	3,823,518	1%
<b>Total</b>	<b>83,429</b>	<b>52,820</b>	<b>136,249</b>	<b>100%</b>	<b>190,274,495</b>	<b>123,883,396</b>	<b>314,157,891</b>	<b>100%</b>

**By Plan Type**

Plan Type	Policy Count	Percent	Expected Annual Premium	Percent
Partnership (Comprehensive)	5,183	4%	7,082,917	3%
Comprehensive	104,648	77%	256,011,169	80%
Facilities Only	26,422	19%	51,098,533	17%
<b>Total</b>	<b>136,253</b>	<b>100%</b>	<b>314,192,619</b>	<b>100%</b>

**By Inflation**

Inflation	Policy Count	Percent	Expected Annual Premium	Percent
No Inflation	84,227	62%	156,698,578	50%
Inflation	52,026	38%	157,494,041	50%
<b>Total</b>	<b>136,253</b>	<b>100%</b>	<b>314,192,619</b>	<b>100%</b>

**By Marital Status at time of Issue**

Marital Status	Gender	Policy Count	Percent	Expected Annual Premium	Percent
Married	F	51,341	38%	111,290,642	35%
Married	M	42,030	31%	97,487,851	31%
Divorced	F	11,382	8%	25,782,395	8%
Divorced	M	3,083	2%	7,501,637	2%
Single	F	9,805	7%	21,516,077	7%
Single	M	4,686	3%	10,382,491	3%
Widowed	F	10,337	8%	30,408,535	10%
Widowed	M	2,263	2%	6,841,737	2%
Unknown	F	559	0%	1,289,784	0%
Unknown	M	750	1%	1,666,810	1%
Separated	F	8	0%	11,203	0%
Separated	M	9	0%	13,458	0%
<b>Total</b>		<b>136,253</b>	<b>100%</b>	<b>314,192,619</b>	<b>100%</b>

**By Marital Status**

Marital Status	Policy Count	Percent	Expected Annual Premium	Percent
Married	93,371	68%	208,778,493	66%
Other	42,882	32%	105,414,126	34%
<b>Total</b>	<b>136,253</b>	<b>100%</b>	<b>314,192,619</b>	<b>100%</b>

## By Premium Mode

Premium Mode	Policy Count	Percent	Expected Annual Premium	Percent
Monthly	103,938	76%	245,233,170	78%
Quarterly	24,962	18%	51,616,307	16%
Semi-Annually	4,304	3%	9,834,957	3%
Annually	3,049	2%	7,508,186	2%
<b>Total</b>	<b>136,253</b>	<b>100%</b>	<b>310,220,681</b>	<b>100%</b>

## By Underwriting Type

Underwriting Type	Policy Count	Percent	Expected Annual Premium	Percent
LF	83,110	61%	204,076,709	65%
MGI	28,971	21%	60,460,329	19%
SF	24,172	18%	49,655,582	16%
<b>Total</b>	<b>136,253</b>	<b>100%</b>	<b>314,192,619</b>	<b>100%</b>

## By Product Series

Product Series	Policy Count	Percent	Expected Annual Premium	Percent
LTC 1	111,941	82%	261,925,394	83%
LTC 2	8,167	6%	18,933,501	6%
LTC 3	15,252	11%	30,744,879	10%
LTC 4	893	1%	2,588,845	1%
<b>Total</b>	<b>136,253</b>	<b>100%</b>	<b>314,192,619</b>	<b>100%</b>



# APPENDIX F

## Glossary of Terms



## Glossary of Terms

**Anti-Selection** - Individuals who let their policies lapse because of special events (see “Shock Lapses”) are usually in better health. Participants do not normally drop their coverage if they anticipate that they will soon have a claim. As a result of this participant decision process, individuals who retain their policies are often, on average, in worse health than those who lapse them. This phenomenon is called Anti-Selection.

**Base Case** - The results of a projection using the “best estimate” assumptions in the LTC valuation. All sensitivity projections are done relative to this Base Case.

**Benefit Period** - This is the period of time that an insured would receive benefits if the full maximum daily benefit amount is paid each day an insured is on claim. If less than the maximum daily benefit amount is paid, the length of time that a claimant would receive benefits would be greater than this time period.

**Claim Costs** - Product of the expected claims frequency (incidence) and the expected average claim (severity) based on assumed continuance.

**Comprehensive Plan** - A plan that covers home health care in addition to care in a nursing home and/or an assisted living facility.

**Continuance** - The period of time that a participant continues to be on claim after a claim has begun.

**Conversion** - The voluntary election to switch/reduce coverage, sometimes as a result of a specific event such as a premium rate increase.

**Credible** - A statistical measure of the degree to which data is considered reliable for predictive purposes. Credibility increases as a block of business grows and over time as more data accumulates.

**Credibility-Weighted Claim Costs** - When actual claim costs from a block of business are not fully credible, data from outside inputs (such as national data sources) are used to supplement the block’s experience. A percentage of each source of claim costs is used such that the two percentages add to 100 percent. The percentage of actual block experience used is based on the credibility of that block, and the remaining percentage would be attributed to the outside input. For CalPERS, the percentages are split between experience-based claim costs and manual claim costs (i.e., LTC insurance industry data).

**Deficit** - A calculation that determines the degree to which the current fund value is insufficient to pay future benefits expressed as a percentage of the present value of future premiums. This number is an estimate of what one-time rate increase would be needed to bring the Program back to the target margin level. If the current fund value is more than enough to pay future benefits, a positive number represents a surplus. In formula terms:

**{Current Fund Balance + Present Value of Premiums - Present Value of Benefits and Expenses} / Present Value of Premiums**

**Disabled Life Reserve** - The value of future claim payments for those participants currently on claim.

**Discount Rate** - An interest rate used to determine present values. For CalPERS, the discount rate is set equal to the expected investment earnings rate.

**Duration** - The amount of time, typically measured in years, since the issue date of the policy. Duration is sometimes referred to as policy year.

**Elimination Period** - The period of time that the participant pays for care before the benefits are paid from insurance proceeds.

**Facility-Only Plan** – A type of plan that pays for care in a nursing home or assisted living facility, but not for care at home or in the community.

**Funded Ratio** - Method of expressing the current financial status of the Program, which is consistent with the CalPERS pension and health plan financial status measurements. In general, the funded ratio is the assets divided by the accrued liability, or reserves. For long-term care insurance, the accrued liability is equal to the present value of future benefits and expenses less the present value of participant premiums. This definition is consistent with a statutory gross premium valuation reserve for LTC insurance. In this context, a breakeven position is a ratio of 100 percent. In formula terms:

**Fund Balance / {Present Value of Benefits and Expenses - Present Value of Premiums}**

**Incidence** - The number of participants that start a claim as a percentage of participants that could start a claim over a specified time period (i.e., frequency of claim).

**Incurred Claims** - Incurred claims are made up of paid claims plus a reserve representing the assumed continuance of claims on known claimants which have yet to be paid as well as claims that have begun on unknown claimants but have not yet been reported. The amount of the latter unpaid claims is referred to as the IBNR (Incurred But Not Reported) Reserve.

**Inflation Coverage** - An optional feature that increases the amount of available benefits over time in order to protect a participant against rising health care costs. The CalPERS inflation coverage feature increases the amount of benefits by 5 percent per year. This compounding of available benefits in combination with the higher than expected (i.e., priced for) persistency is one of the primary causes of Program deficits.

**LTC1, LTC2, LTC3, LTC4** - Four different long-term care insurance plans sold to CalPERS participants. The main differences between the plans are the percentages of daily benefit for the Home Health Care (HHC) and Assisted Living Facility (ALF) care that are available at the time of claim in comparison to the Nursing Home (NH) coverage for comprehensive policies. A summary of those benefits and the initial issue year is shown below.

LTC1 (1995) - NH (100%) / ALF (50%) / 50% HHC  
LTC2 (2003) - NH (100%) / ALF (70%) / 50% HHC  
LTC3 (2005) - NH (100%) / ALF (70%) / 70% HHC  
LTC4 (2014) - NH (100%) / ALF (100%) / 100% HHC

**Model** - An actuarial tool used to project future cash flows including premiums, claims, investment returns, and expenses.

**Morbidity** - The overall term for the various assumptions underlying the expected/projected claims of a block of business.

**Mortality** - The rate of incidence of death.

**Partnership Plan** - A collaboration or “partnership” between state government, insurance companies, and state residents who buy long-term care Partnership policies. The purpose of the Partnership Program is to encourage individuals to purchase LTC coverage and save the state money by increasing private funding of LTC services and thereby reducing Medicaid payments for LTC. The advantage of the partnership plan for a participant is that once his/her insurance coverage is exhausted, his/her assets in an amount equal to the amount of insurance coverage used are protected when qualifying for Medicaid payments for LTC.

**Persistency** - The number of participants that remain active relative to the total number that started from one time period to another. Historically, LTC persistency has been higher than what was originally expected for CalPERS and the LTC industry as a whole. Because of the stronger than expected persistency, more participants are ultimately expected to submit claims than were originally expected, which puts additional financial strain on a LTC Program.

**Present value** - A calculation that expresses future cash flows in a current cash equivalent amount based on assumed future interest rates (the Discount Rate).

**Return of Premium or (ROP)** - Returns some or all of a participant’s premiums less any benefits paid to the spouse or estate if the participant dies before age 75. This is a built-in option for some of CalPERS plans.

**Selection Factors** - Factors used to adjust attained age or ultimate claim costs to levels reflecting recent underwriting/issue, therefore reducing (in general) claim costs associated with those policies. Different selection factors are also used for the mortality assumption.

**Shock Lapses** - An insurance phenomenon where individuals allow their policies to lapse/terminate at a higher rate than usual due to a specific event such as a premium rate increase.

**Terminations** - The policies that are no longer active due to death, voluntary lapse, or any other reason.

**Ultimate Claim Costs (Factors)** - Also referred to as attained-age claim costs; it represents the claim costs after underwriting selection wears off.

**Underwriting Type** - Underwriting is the process of evaluating and selecting risks to be insured. Three types of underwriting were utilized at various times by CalPERS:

- MGI - Modified Guaranteed Issue; limited underwriting for younger applicants actively at work.
- SF - Short Form; simplified application process with limited medical evaluation for younger applicants.
- LF - Long Form; considered “full underwriting” due to the comprehensive nature of medical questions asked and the associated underwriting process.

Currently, CalPERS only uses the long form of application for underwriting and has done so since 2002.

**Voluntary Lapsation** - When a participant chooses to terminate his/her policy of his/her own volition - not due to death or other limitation on renewing contained within the policy.

**Waiver of Premium or WOP** - A benefit provision in a policy that allows the insured to stop making premium payments during the time when they meet specified disabling conditions such as being eligible to be on LTC claim.