# Core Fund Annuity <br> Adjustment Projections 

## Joint Information Meeting March 8, 2012

| Board | Mtg Date | Item \# |
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| JI | 3.10 .11 | 3 D |

## Assumptions

- Based on 2011 actual Core Trust Fund investment returns.
- Includes 2007-2010 investment gains and losses carried forward in the Market Recognition Account (MRA).
- Annuities will be increased if annuity reserve surplus provides at least a $0.5 \%$ increase.
- Annuities will be reduced if annuity reserve shortfall would require at least a -0.5\% adjustment.


## Assumptions (cont.)

- $0.4 \%$ per year is reserved for mortality improvement and other actuarial adjustments and is not available for annuity adjustments.
- Negative adjustments can only reduce increases granted in prior years. A core annuity cannot be reduced below the original value.
- Less than half of all annuities will be subject to a negative adjustment in 2013.


## Market Recognition Account

- Investment gains / losses are "smoothed" through the Market Recognition Account (MRA):
- The MRA is intended to give recognition to long-term changes in asset values while minimizing the impact of short-term fluctuations in the capital markets;
- Investment gains equal to the assumed rate (7.2\%) are recognized;
- The difference between actual gains or losses and the assumed rate is spread equally over 5 years.


## There is a $\$ 5.3$ billion investment

 loss to be recognized in future years, $\$ 4.6$ billion of it in 2012|  | Year to Be Recognized (millions \$) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Year Earned | 2011 | 2012 | 2013 | 2014 | 2015 |
| 2012 |  | ? | ? | $?$ | ? |
| 2011 | (935) | (935) | (935) | (935) | (935) |
| 2010 | 399 | 399 | 399 | 399 |  |
| 2009 | 1,288 | 1,288 | 1,288 |  |  |
| 2008 | $(5,370)$ | $(5,370)$ |  |  |  |
| 2007 | 212 |  |  |  |  |
| Totals | $(4,406)$ | $(4,618)$ | 752 | (536) | (935) |

The deferred investment losses will be allocated approximately $51 \%$ to the annuity reserve, $29 \%$ to the employer reserve and $20 \%$ to the member reserve.

# How Annuity Adjustments Have Affected Annuitants 

## Current Value of Annuities

| If You <br> Retired <br> in | A \$1,000 <br> Core <br> Annuity is <br> Receiving | The <br> Annual <br> Rate of <br> Increase <br> is | A \$1,000 <br> Variable <br> Annuity <br> is <br> Receiving | The <br> Annual <br> Rate of <br> Increase <br> is | The <br> Annual <br> Change <br> in CPI is |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2007 | $\$ 946^{*} /$ <br> $\$ 1,000$ | $(1.1 \%)^{*} /$ <br> $0 \%$ | $\$ 730$ | $(6.1 \%)$ | $2.3 \%$ |
| 2002 | $\$ 1,022$ | $0.2 \%$ | $\$ 808$ | $(2.1 \%)$ | $2.5 \%$ |
| 1997 | $\$ 1,509$ | $2.8 \%$ | $\$ 989$ | $(0.1 \%)$ | $2.4 \%$ |
| 1992 | $\$ 1,913$ | $3.3 \%$ | $\$ 1,501$ | $2.1 \%$ | $2.5 \%$ |
| 1987 | $\$ 2,604$ | $3.9 \%$ | $\$ 1,894$ | $2.6 \%$ | $2.9 \%$ |

* Annuity value as if all negative adjustments had been applied. Actual core annuities cannot be reduced below their initial value.


## Change in Value of 1987 Annuity (2,395 annuitants)



## Change in Value of 1992 Annuity (3,257 annuitants)



## Change in Value of 1997 Annuity

 (5,156 annuitants)

## Change in Value of 2002 Annuity (7,145 annuitants)



## Change in Value of 2007 Annuity

(8,549 annuitants)


## The Declining Population of Annuitants Affected by

 Negative Annuity Adjustments
## Annual Annuities by Year of Inception Before (2.1\%) adjustment As of December 31, 2008



## Annual Annuities by Year of Inception After (2.1\%) adjustment <br> As of December 31, 2008



## Annual Annuities by Year of Inception After (1.3\%) adjustment As of December 31, 2009



## Annual Annuities by Year of Inception After (1.2\%) adjustment As of December 31, 2010


$\square$ Initial Annuity $\quad$ Accumulated Increases $\square 1.2 \%$ Reduction

## Annual Annuities by Year of Inception After (7.0\%) adjustment

As of December 31, 2011


## Annual Annuities by Year of Inception Before adjustment <br> As of December 31, 2012



## Annuity Adjustment Projections

## Annuity Adjustment Projections

- Projections...not predictions
- Only an actuarial valuation can accurately calculate the annuity adjustments
- Useful for anticipating the magnitude, not exact amount, of future adjustments


## A 7.2\% investment return in 2012 will result in a maximum annuity adjustment between -12\% and -16\%

|  | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SWIB Net Investment Return | 1.4\% | 7.2\% | 7.2\% | 7.2\% | 7.2\% | 7.2\% |
| Effective Rate | 1.5\% | $\begin{gathered} 0.9 \% \\ \text { to } \\ 1.3 \% \end{gathered}$ | 8.4\% to 8.8\% | $\begin{aligned} & 6.6 \% \\ & \text { to } \\ & 7.0 \% \end{aligned}$ | $6.1 \%$ to 6.5\% | $\begin{gathered} 7.3 \% \\ \text { to } \\ 7.7 \% \end{gathered}$ |
| Average Annuity Adjustment | -4.0\% | -4.2\% to -4.6\% | $\begin{gathered} 2.2 \% \\ \text { to } \\ 2.6 \% \end{gathered}$ | $\begin{gathered} 0.7 \% \\ \text { to } \\ 1.1 \% \end{gathered}$ | $\begin{aligned} & 0.0 \% \\ & \text { to } \\ & 0.7 \% \end{aligned}$ | $\begin{gathered} 1.3 \% \\ \text { to } \\ 1.7 \% \end{gathered}$ |
| Maximum Annuity Adjustment | -7.0\% | $\begin{gathered} -12 \% \\ \text { to } \\ -16 \% \end{gathered}$ | $\begin{gathered} 2.2 \% \\ \text { to } \\ 2.6 \% \end{gathered}$ | $\begin{gathered} 0.7 \% \\ \text { to } \\ 1.1 \% \end{gathered}$ | $\begin{aligned} & 0.0 \% \\ & \text { to } \\ & 0.7 \% \end{aligned}$ | $\begin{aligned} & 1.3 \% \\ & \text { to } \\ & 1.7 \% \end{aligned}$ |

## A 0\% investment return in 2012 will result in a maximum annuity adjustment between $-17 \%$ and $-21 \%$

|  | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SWIB Net Investment Return | 1.4\% | 0\% | 7.2\% | 7.2\% | 7.2\% | 7.2\% |
| Effective Rate | 1.5\% | $\begin{gathered} -0.2 \% \\ \text { to } \\ -0.6 \% \end{gathered}$ | $\begin{gathered} 6.9 \% \\ \text { to } \\ 7.3 \% \end{gathered}$ | $\begin{gathered} 5.0 \% \\ \text { to } \\ 5.4 \% \end{gathered}$ | 4.5\% to 4.9\% | $\begin{aligned} & 5.7 \% \\ & \text { to } \\ & 6.1 \% \end{aligned}$ |
| Average Annuity Adjustment | -4.0\% | $\begin{gathered} -5.5 \% \\ \text { to } \\ -5.9 \% \end{gathered}$ | $\begin{gathered} 0.8 \% \\ \text { to } \\ 1.2 \% \end{gathered}$ | $\begin{gathered} 0 \% \\ \text { to } \\ -0.7 \% \end{gathered}$ | $\begin{gathered} -1.0 \% \\ \text { to } \\ -1.4 \% \end{gathered}$ | 0\% |
| Maximum Annuity Adjustment | -7.0\% | $\begin{gathered} -17 \% \\ \text { to } \\ -21 \% \end{gathered}$ | $\begin{gathered} 0.8 \% \\ \text { to } \\ 1.2 \% \end{gathered}$ | $\begin{gathered} 0 \% \\ \text { to } \\ -0.7 \% \end{gathered}$ | $\begin{gathered} -1.0 \% \\ \text { to } \\ -1.4 \% \end{gathered}$ | 0\% |

## An investment return between 27\% and $31 \%$ in 2012 is needed to avoid a negative annuity adjustment

|  | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SWIB Net Investment Return | 1.4\% | $27 \% \text { to }$ $31 \%$ | 7.2\% | 7.2\% | 7.2\% | 7.2\% |
| Effective Rate | 1.5\% | $\begin{gathered} 5.2 \% \\ \text { to } \\ 5.6 \% \end{gathered}$ |  | 11.0\% to 11.4\% | $\begin{gathered} 10.3 \% \\ \text { to } \\ 10.7 \% \end{gathered}$ | $11.2 \%$ to 11.6\% |
| Average Annuity Adjustment | -4.0\% | 0\% | $\begin{aligned} & 5.8 \% \\ & \text { to } \\ & 6.2 \% \end{aligned}$ | 4.7\% to 5.1\% | 4.1\% to 4.5\% | $\begin{gathered} 4.9 \% \\ \text { to } \\ 5.3 \% \end{gathered}$ |
| Maximum Annuity Adjustment | -7.0\% | 0\% | $\begin{aligned} & 5.8 \% \\ & \text { to } \\ & 6.2 \% \end{aligned}$ | $\begin{gathered} 4.7 \% \\ \text { to } \\ 5.1 \% \end{gathered}$ | 4.1\% to 4.5\% | $\begin{gathered} 4.9 \% \\ \text { to } \\ 5.3 \% \end{gathered}$ |

## An investment return between 33\% and $37 \%$ in 2012 is needed to pay a positive annuity adjustment

|  | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SWIB Net Investment Return | 1.4\% | $\begin{gathered} 33 \% \text { to } \\ 37 \% \end{gathered}$ | 7.2\% | 7.2\% | 7.2\% | 7.2\% |
| Effective Rate | 1.5\% | $\begin{gathered} 6.3 \% \\ \text { to } \\ 6.7 \% \end{gathered}$ |  | $11.9 \%$ to 13.3\% |  |  |
| Average Annuity Adjustment | -4.0\% | 0.5\% | $\begin{gathered} 7.3 \% \\ \text { to } \\ 7.7 \% \end{gathered}$ | $\begin{aligned} & 5.5 \% \\ & \text { to } \\ & 5.9 \% \end{aligned}$ | $\begin{gathered} 4.9 \% \\ \text { to } \\ 5.3 \% \end{gathered}$ | $\begin{gathered} 5.6 \% \\ \text { to } \\ 6.0 \% \end{gathered}$ |
| Maximum Annuity Adjustment | -7.0\% | 0.5\% | $\begin{gathered} 7.3 \% \\ \text { to } \\ 7.7 \% \end{gathered}$ | $\begin{gathered} 5.5 \% \\ \text { to } \\ 5.9 \% \end{gathered}$ | $\begin{gathered} 4.9 \% \\ \text { to } \\ 5.3 \% \end{gathered}$ | $\begin{gathered} 5.6 \% \\ \text { to } \\ 6.0 \% \end{gathered}$ |

## Questions?

