Tennessee DFA:
Development of UST Liability Estimates
Outline of Presentation

• Background on “IBNR”
• Discussion of “Actuarial Ultimate Losses”
• Sources of and Consideration of Uncertainty
• Real Data Loss Development Examples and Discussion
• Q & A
IBNR Reserves

- “IBNR” => Incurred but not reported
- Sources of IBNR
  - Development on known claims
  - Reopened claims
  - Claims in transit
  - Late reported claims (aka “Pure” IBNR)
Actuarial Ultimate Losses

Change in:

- The level of late reported claims
- The case reserves posted on individual claims
- The level of paid losses

Change in the Actuarial Ultimate Losses
Sources of Uncertainty

- Changes in rate of claim payments
- Changes in reserving practices
- Changes in mix of exposure
- Availability of loss development data – need to supplement with benchmarks?
- Changes in the legal/regulatory environment (1998)
Consideration of Uncertainty

- Multiple actuarial methods
- Diagnostics Tests (loss ratios, frequency, loss costs per unit of exposure)
- Adjustments to data to reflect operational changes
- Low/High Estimates based on outcomes of different methods
- Risk Margins
## Summary of Ultimate Loss and Reserves

<table>
<thead>
<tr>
<th>Valuation Year</th>
<th>Ultimate</th>
<th>Reserves</th>
<th>Data Reported Through</th>
<th>Report Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>343,503,687</td>
<td>131,138,429</td>
<td>2/29/2004</td>
<td>Willis, pdf pages 7 and 10</td>
</tr>
<tr>
<td>2006</td>
<td>338,679,858</td>
<td>62,528,363</td>
<td>2/10/2006</td>
<td>Willis, pdf pages 7 and 11</td>
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<td>2008</td>
<td>328,773,159</td>
<td>35,270,862</td>
<td>2/1/2008</td>
<td>Willis, pdf pages 7 and 11</td>
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<tr>
<td>2010</td>
<td>380,475,014</td>
<td>71,431,584</td>
<td>2/1/2010</td>
<td>Willis, pdf pages 7 and 12</td>
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<tr>
<td>2012</td>
<td>432,403,338</td>
<td>88,570,122</td>
<td>1/15/2012</td>
<td>Pinnacle, pdf pages 19 and 20</td>
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<tr>
<td>2014</td>
<td>442,438,646</td>
<td>77,744,208</td>
<td>4/24/2014</td>
<td>Pinnacle, pdf pages 19 and 20</td>
</tr>
<tr>
<td>2016</td>
<td>424,810,177</td>
<td>41,849,557</td>
<td>3/1/2016</td>
<td>Pinnacle, pdf pages 19 and 20</td>
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<td>2018</td>
<td>430,627,206</td>
<td>33,354,303</td>
<td>3/1/2018</td>
<td>Pinnacle, pdf pages 20 and 21</td>
</tr>
</tbody>
</table>

(1) Net paid thus far for all report years @ valuation + required reserves for known claims @ Report Date for Weighted scenario

(2) (1) - Net paid thus far for all report years @ valuation
Development of 2004 Cohort:
All claims reported prior to 6/30/2004

<table>
<thead>
<tr>
<th>Year</th>
<th>Est. Required Reserves for Known claims (000s)</th>
<th>Total Paid Thus Far (000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>131,138</td>
<td>212,365</td>
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<tr>
<td>2006</td>
<td>46,806</td>
<td>273,496</td>
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<tr>
<td>2008</td>
<td>29,262</td>
<td>288,634</td>
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<tr>
<td>2010</td>
<td>61,256</td>
<td>300,802</td>
</tr>
<tr>
<td>2012</td>
<td>62,838</td>
<td>326,474</td>
</tr>
<tr>
<td>2014</td>
<td>50,214</td>
<td>341,045</td>
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<tr>
<td>2016</td>
<td>24,253</td>
<td>348,452</td>
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<tr>
<td>2018</td>
<td>6,296</td>
<td>354,564</td>
</tr>
</tbody>
</table>
Q&A
Thank You for Your Attention

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