

Tennessee DFA: Development of UST Liability Estimates

Commitment Beyond Numbers

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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

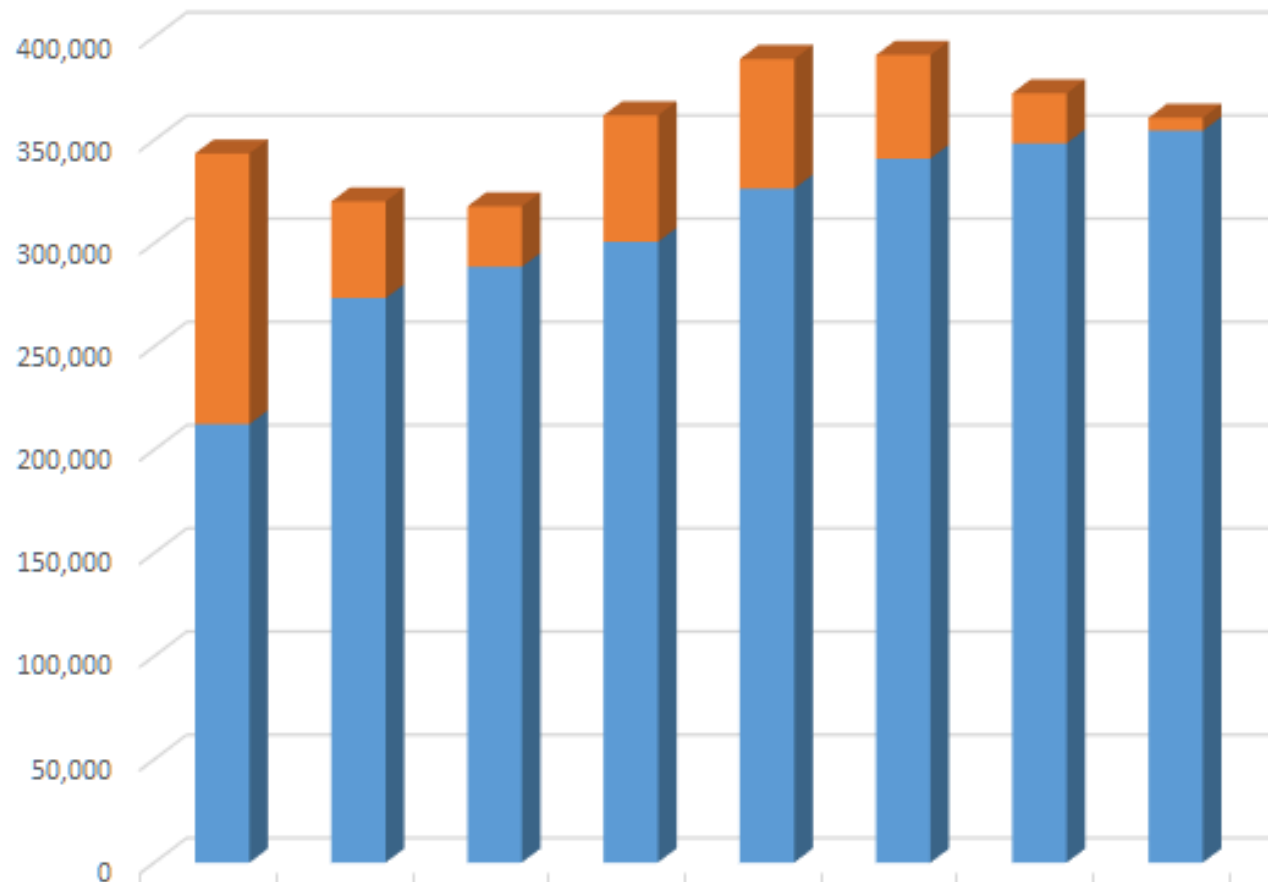
Summary of Ultimate Loss and Reserves

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

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

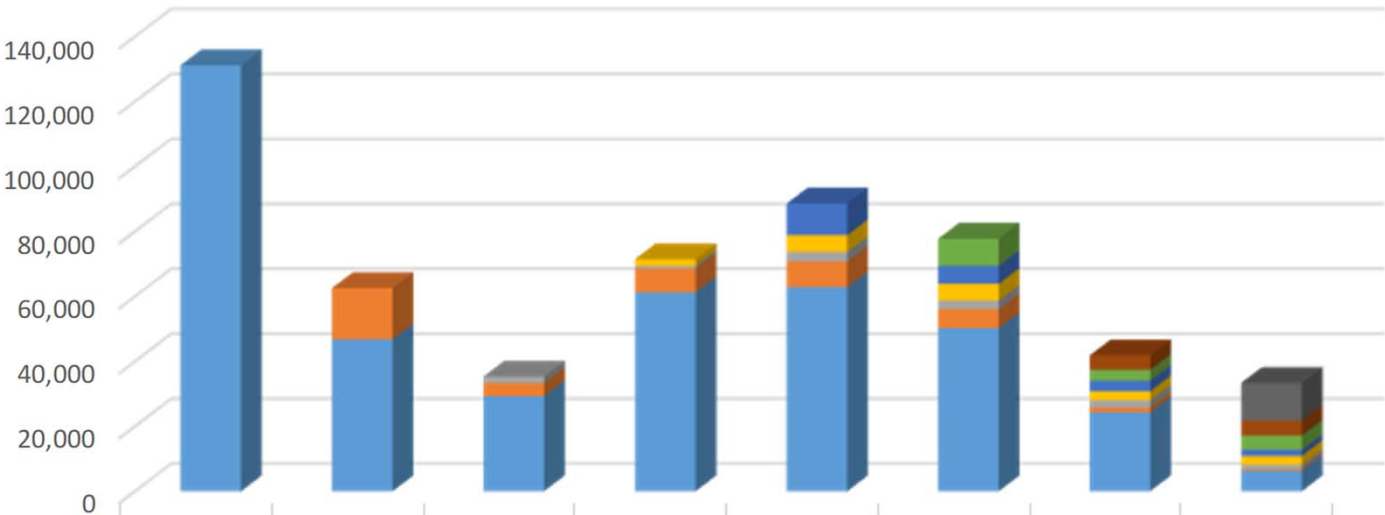
(2) (1) - Net paid thus far for all report years @ valuation

Development of 2004 Cohort: All claims reported prior to 6/30/2004



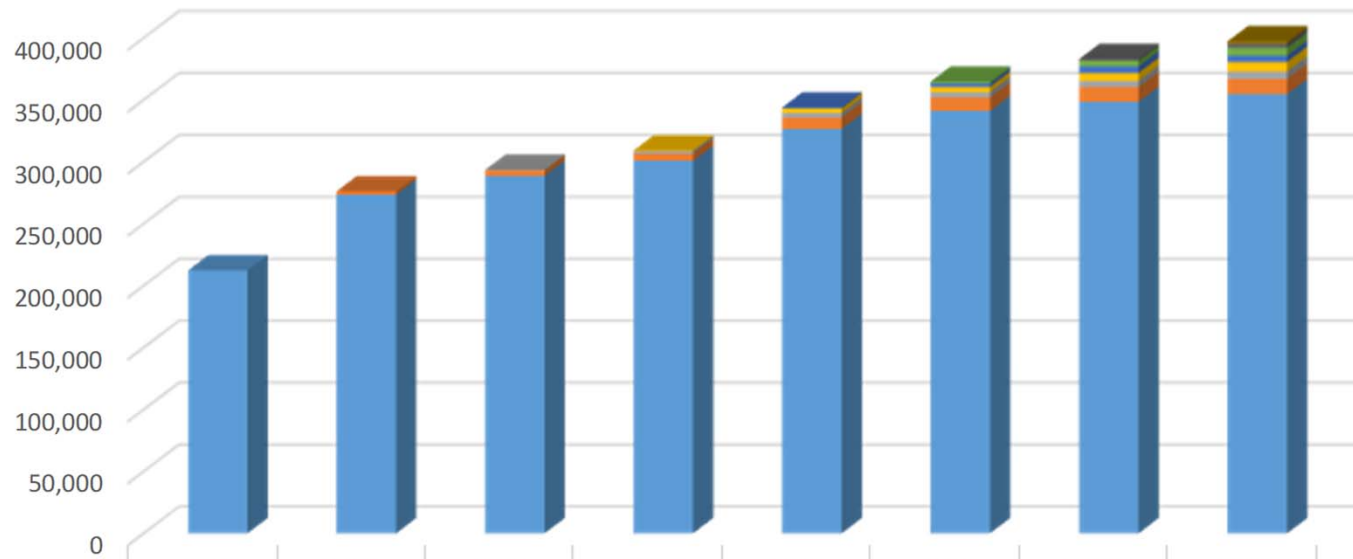
| | 2004 | 2006 | 2008 | 2010 | 2012 | 2014 | 2016 | 2018 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|
| Est. Required Reserves for Known claims (000s) | 131,138 | 46,806 | 29,262 | 61,256 | 62,838 | 50,214 | 24,253 | 6,296 |
| Total Paid Thus Far (000s) | 212,365 | 273,496 | 288,634 | 300,802 | 326,474 | 341,045 | 348,452 | 354,564 |

Reserve Amounts at Valuation Report Date



| | 2004 | 2006 | 2008 | 2010 | 2012 | 2014 | 2016 | 2018 |
|-------------------|---------|--------|--------|--------|--------|--------|--------|--------|
| RY 2017-18 | | | | | | | | 11,582 |
| RY 2015-16 | | | | | | | 4,504 | 4,642 |
| RY 2013-14 | | | | | | 8,355 | 3,329 | 4,350 |
| RY 2011-12 | | | | | 9,773 | 5,545 | 3,218 | 1,932 |
| RY 2009-10 | | | | 2,051 | 5,161 | 5,130 | 2,860 | 2,739 |
| RY 2007-08 | | | 1,959 | 849 | 2,862 | 2,670 | 2,217 | 1,360 |
| RY 2005-06 | | 15,722 | 4,050 | 7,276 | 7,936 | 5,830 | 1,469 | 453 |
| RY 2004 and Prior | 131,138 | 46,806 | 29,262 | 61,256 | 62,838 | 50,214 | 24,253 | 6,296 |

Net Paid Amounts by Valuation Report



| | 2004 | 2006 | 2008 | 2010 | 2012 | 2014 | 2016 | 2018 |
|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| ■ RY 2017-18 | | | | | | | | 2,003 |
| ■ RY 2015-16 | | | | | | | 1,442 | 3,265 |
| ■ RY 2013-14 | | | | | | 1,337 | 4,521 | 6,329 |
| ■ RY 2011-12 | | | | | 659 | 2,901 | 5,351 | 5,166 |
| ■ RY 2009-10 | | | | 491 | 3,699 | 4,198 | 6,271 | 7,670 |
| ■ RY 2007-08 | | | 516 | 1,971 | 3,746 | 4,397 | 5,084 | 6,011 |
| ■ RY 2005-06 | | 2,655 | 4,352 | 5,779 | 9,255 | 10,816 | 11,838 | 12,266 |
| ■ RY 2004 and Prior | 212,365 | 273,496 | 288,634 | 300,802 | 326,474 | 341,045 | 348,452 | 354,564 |

Q&A



Thank You for Your Attention

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