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# Roll-Forward Reserve Estimates

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# Overview

- A roll-forward reserve estimate is used to adjust the reserves in periods between complete Actuarial reserve analyses

- Two extremes
  - Mechanically adjust reserves using an Actual vs Expected roll-forward for every segment and year
  - Leave ultimates or reserves unchanged for every segment and year

- And all places in between

# Questions

- How do you choose?
- Mechanical or manual process?
- Different method for different reserve segments?

# Considerations

- Possible considerations in choosing one method over another
  - Time period of roll-forward
  - Credibility of the expected in the time period
  - Volatility of actual data in the time period

- Selected method may not be the same across all reserve segments
  - Short-tailed vs long-tailed lines
  - Current year vs prior years
  - Gross vs Net

# *Section 2 – Potential Roll-forward Methods*
## *("Actual vs. expected" example)*

| Accident Year | Percentage Paid Between 09/30/14 and 12/31/14 As % of Res (5) | Percentage Paid Between 09/30/14 and 12/31/14 As % of Ult (6) | Paid Ultimate (2) * (3) (7) | Paid Loss Estimate 1 [(7) - (2)] * (5) (8) | Paid Loss Estimate 2 (6) * (7) (9) |
|---|---|---|---|---|---|
| 2010 | 6.7% | 1.5% | $ 478,280 | $ 7,346 | $ 7,346 |
| 2011 | 4.8% | 1.5% | 820,122 | 12,596 | 12,596 |
| 2012 | 4.9% | 2.2% | 685,885 | 15,286 | 15,286 |
| 2013 | 5.2% | 3.4% | 298,769 | 10,292 | 10,292 |
| 2014 | 4.3% | 3.8% | 416,610 | 15,988 | 15,988 |
| | | | $ 2,699,666 | $ 61,508 | $ 61,508 |

# *Section 2 – Potential Roll-forward Methods*
## *("Actual vs. expected" example)*

| Accident Year | Paid Loss Estimate 1 [(7) - (2)] * (5) (8) | Paid Loss Estimate 2 (6) * (7) (9) | Actual Payments (10) | Estimate 1 Difference (10)-(8) (11) | Estimate 2 Difference (10)-(9) (12) |
|---|---|---|---|---|---|
| 2010 | $ 4,731 | $ 6,742 | $ 6,743 | $ 2,012 | $ 1 |
| 2011 | 6,883 | 10,751 | 13,456 | 6,573 | 2,705 |
| 2012 | 4,847 | 10,519 | 14,567 | 9,720 | 4,048 |
| 2013 | 10,615 | 10,506 | 9,873 | (742) | (633) |
| 2014 | 16,349 | 16,310 | 16,490 | 141 | 180 |
| | $ 43,425 | $ 54,829 | $ 61,129 | $ 17,704 | $ 6,300 |

# Possible Issues in Actual vs Expected

- Case reserve strengthening
- Seasonality
- Catastrophes
- Early activity in long-tailed lines
- Reserve review methods different than Actual vs Expected methods
- Management's bias in recorded vs indicated reserves

**To address some of these issues, you can:**

– Adjust the inputs to the Actual vs Expected calculation

– Use a different Actual vs Expected method

– Apply a more manual process in the roll-forward

# Miscellaneous

- Lack of data availability
- Changing from one method to another (either in the AvsE calculation or use of it)
- Paid AvsE and Incurred AvsE implying different answers
- Other uses of roll-forward estimates

# Conclusions

There is no one-size-fits-all approach

Questions/Comments???