

Construction Defects: Learnings from a Deep Dive

Casualty Loss Reserving Seminar

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Agenda



Scope

Considerations for defining the scope of Construction Defect reserving



Common Issues

Discussion of critical questions that frequently arise in Construction Defect reserving



Applying Advanced Techniques

Identification of advanced techniques for consideration in Construction Defect reserving



Construction GL Deep Dive

Scope



- Construction Defect
- NY Labor Laws
- Non-CD, Non-LL

Tasks



- Educate team on construction defect issues
- Assess reserve adequacy
- Evaluate profitability on in-force business
- Review wrap pricing models



Initial Thoughts on “Deep Dive” Tasks

Background

- Educate team on construction defect issues
- Discussions with actuarial, underwriting, and claims
- Understand past actuarial analysis and actual vs. expected
- Document data issues

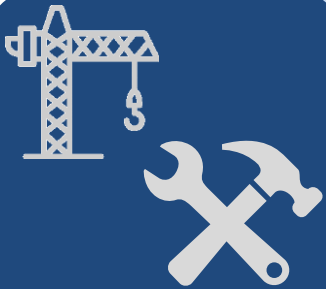
Analysis

- Resolve definitional issues and understand data fields
- Diagnostic review

Action Items

- Review actuarial methods and suggest enhancements
- Assess reserve adequacy
- Evaluate profitability on in-force business
- Review wrap pricing models

Defining Construction and CD



Construction

Construction Divisions

SIC Codes

- *Construction, Real Estate, Manufacturing, Services*

Wraps in non-construction classes

- *CCIPs/OCIPs*



Construction
Defect

“deficiency in the design or construction of a building or structure resulting from a failure to design or construct in accordance with a buyer’s reasonable expectation”

Claim department definition

Text search



Residential vs. Commercial

Definitions

- “residential occupancy” ,”for sale occupancy”
- ??? - Apartment buildings, senior living, military housing, schools, university housing, hotels, hospitals...

Why is it worse? (e.g.,)

- More frame construction
- Use of lower priced labor
- Residential owner/buyer expectations
- Inexperience of residential owner/buyer
- Pressure on HOA to sue

Other Considerations

- Mixed use treatment
- High incidence counts typically residential
- Residential losses on commercial risks
- Premium vs. Loss



Wrap vs Practice

Analyze together or separate?

Do wrap primary limits erode faster? Are the limits the same or different?

Wraps not working as they should!

Does different usage of SIRs and deductibles affect the assumptions?

How does this affect reporting patterns, claim counts, severities?

Wraps have less historical development as they have not been written as long.

Are there differences between OCIPs and CCIPs?

U/W and claims folks can justify just about any change in assumption!

Common Issues

State



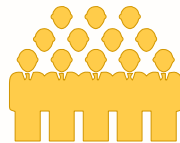
Tax state vs. Loss state

A Priori assumption for CD states – CA, HI, AK, WA, OR, NV, CO, AZ, TX, MS, LA, AL, FL, SC, NC, NJ, NY, MN

Graphed AY claim count patterns to test patterns and possibly group

Test for Statute of Repose differences

Claim Department



Changes to staffing/TPA/TPA usage

Changes in claims systems

Changes in fast track reserves

Tracking aggregate limits

Claim Count



Master file or individual claim counts

- Each policy year or just one
- Named vs additional insured

Do all claim counts represent the same exposure?

Defining AY and RY

Placing of losses

Wrap issues

- each contractor/sub within
- inside vs. outside

Notice only claims

Coding of loss vs ALAE

Closed w/ pay definitions



Construction Segmentation

Admitted vs. non-Admitted

Residential vs. Commercial
(Wrap only)

Primary vs. Excess Layer

Type of Policy
(Guaranteed Cost, Loss Sensitive,
Retro Rated – Practice only)

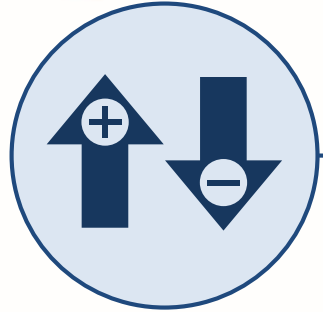
Wraps vs. Practice

State Groupings
(CD State Groupings
NY for Labor Laws)

Others...



Considerations



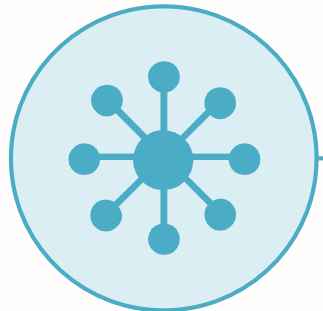
Business Mix Shift:

- Changing attachment points
- Changing limits profile
- Underwriting changes



Estimating RLAFs:

- Using premium as an exposure base
- Estimating rate changes as far back as 10+ years
- Projects are “one off”
- Impacts of deductibles and SIRs



Others:

- Large losses/Class actions
- Benchmarks/compliments of credibility
- Include warranty losses for residential?
- Bad faith judgments



Why RY/AY Methods?

Advantages

- RY patterns stable and shorter than AY
- Pure IBNR assumptions more explicit
- Frequency/Severity assumptions more transparent than reported loss development factors
- Easier to test assumption changes (business mix, claims handling, etc.)
- AY methods rely more on EP assumptions

Disadvantages

- More reliance on claim counts which can have bigger issues than just losses
- Difficult to allocate RY IBNER to AY



Several cuts of data may provide valuable insight, but may not be readily available

CD vs. not CD!

**Wraps vs.
non-Wraps**

Named vs. Additional insured

**General Contractor vs.
Subcontractor vs.
Homebuilder**

Loss vs. ALAE

Primary vs. Excess Layer

**State (isolate
large/problematic states)**

Residential vs. Commercial

**High Frequency Claim Types
(e.g. Chinese drywall, EIFS)**



Text mining claims notes could unlock segmentation options

Example: Identifying Residential claims

Identify **key words** based on your definition of a residential claim

| | | | |
|-------------|---------------|------------|-------------|
| bedroom | kitchen | bathroom | room |
| dining | rooms | building | home |
| homes | house | townhome | residence |
| apartment | hotel | condo | resort |
| hospital | single_family | residences | developer |
| development | residential | unit | tract |
| units | hoa | homeowner | tenant |
| lease | rent | resident | matrix |
| purchased | owners | unit_owner | association |
| community | individual | city | district |
| commercial | communities | project | facility |

...letter for a CD/CI transfer from attorney for
condo. Completion of the transfer, that
home ...about the past interest, they have
HOA ...to complete the remainder of the
...in various living areas, given
that they had need to

Use a **text mining algorithm** to isolate key words in claim notes



Possible data segmentation narrowed by available data

CD vs. not CD!

Wraps vs.
non-Wraps

~~Named vs. Additional insured~~

General Contractor vs.
Subcontractor vs.
Homebuilder

Loss vs. ALAE

~~Primary vs. Excess Layer~~

State (isolate
large/problematic states)

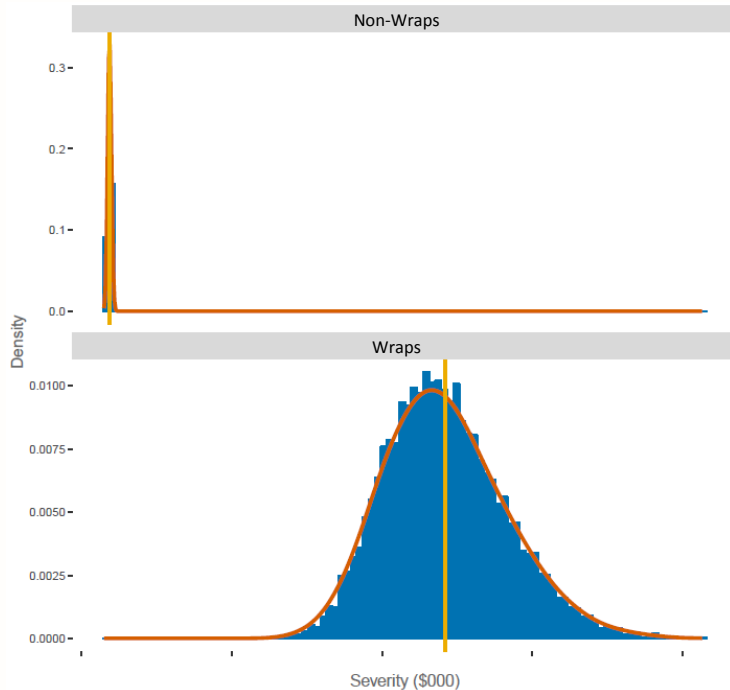
Residential vs. Commercial

~~High-Frequency Claim Types
(e.g. Chinese drywall, EIFS)~~



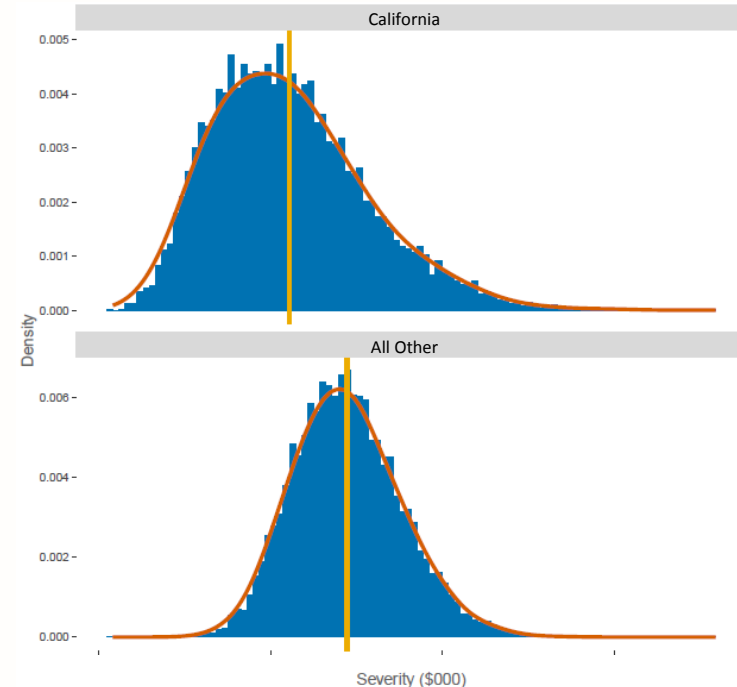
Claim severity simulation techniques can assist in selecting optimal segmentation

Wraps vs. non-Wraps



Difference in claim severities for wraps and non-wraps **are statistically significant**

State



Significant overlap in severity distributions for California and All Other States indicates **no statistically significant difference**



Claim level modeling can bolster IBNER analysis

Challenge #1

- Allocating IBNER from RY to AY
Requires report lag assumptions

Challenge #2

- Accounting for business mix shift
Changes to limit and deductible profile, state distribution, etc.



No allocation required as each claim's IBNR can be assigned to appropriate AY



No assumptions needed as claim characteristics are accounted for in the model



No pure IBNR assumption required to compare directly to RY IBNER methods!



What else?!

W-2/AR-12 Triangles Reimagined



AR-9: Frequency-Severity Stochastic Approach to Loss Development; Developing Individual Claims

ST-13: Reserves Call Paper Program: Deep Triangle - A Deep Learning Approach to Loss Reserving



Others?



Questions and Discussion

