2022 Reserving Report

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Agenda

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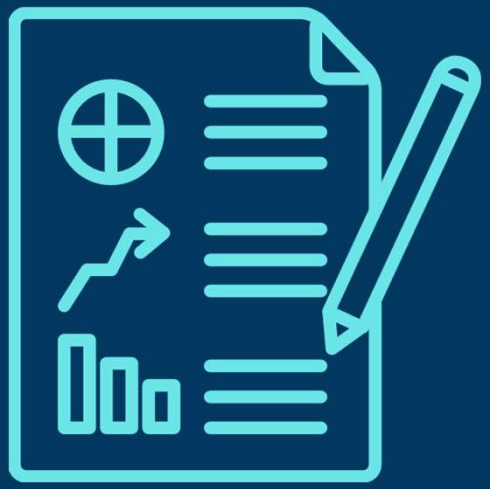
01 Reserving Method Analysis

02 Lines of Business

03 Catastrophe Reserving

04 Final Thoughts

Reserving Method Analysis



01

Loss Triangles

Reserving Methods

Abnormalities and Shifts

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ClaimI	LoB	Type	initialReserve	Paid
54X28	Auto	Liability	$3.4M	$4.0M
1X13	Auto	Liability	$1.6M	$1.7M
74X5	Auto	Liability	$1.1M	$1.2M
39X22	Auto	Liability	$1.1M	$1.3M
51X4	Auto	Liability	$0.9M	$1.1M

- ***Removal*** of outliers
- Capped at $1M to extract more accurate projections from dataset

Abnormalities and Shifts

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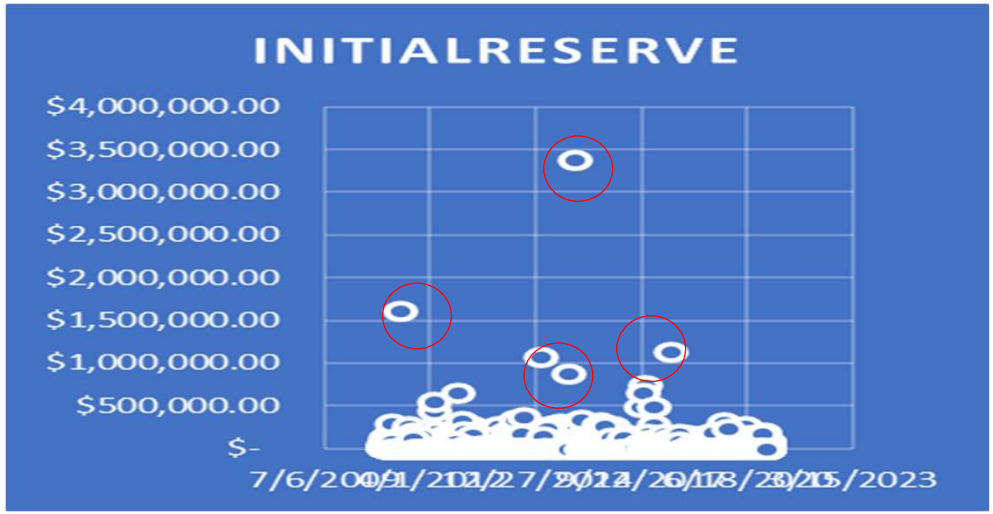

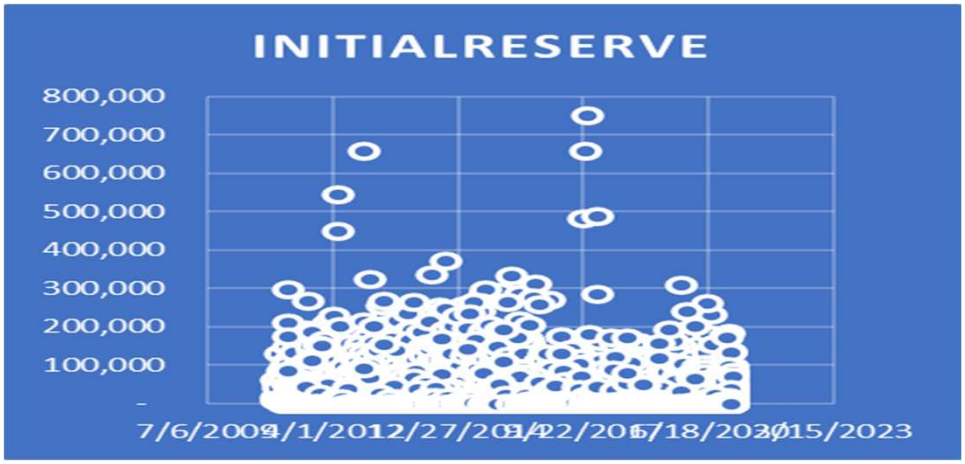

Abnormalities and Shifts

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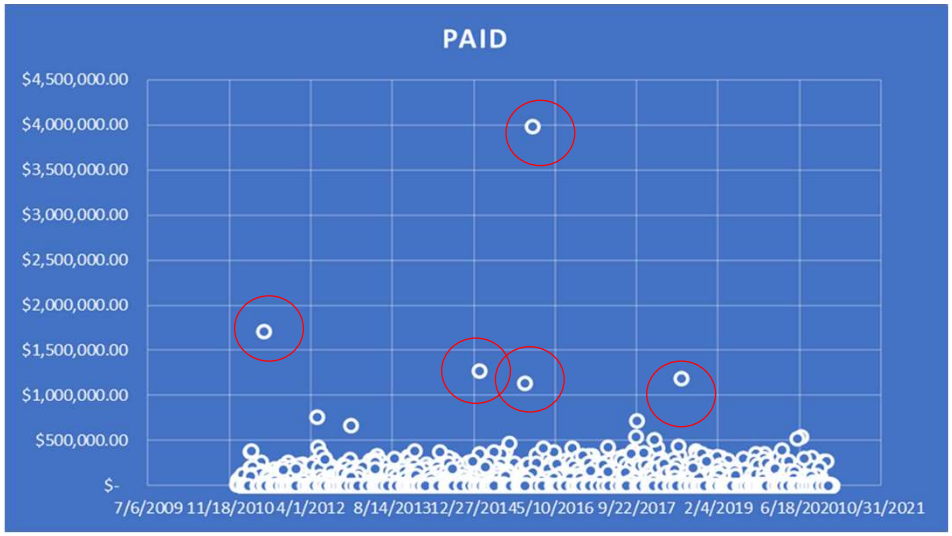

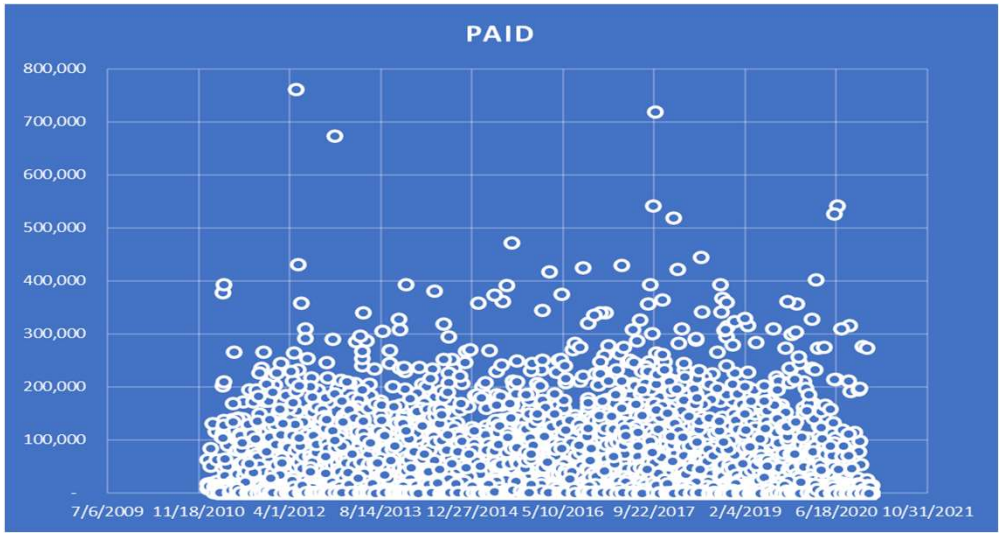

Reserving Methods

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Accident Year	Paid Chain Ladder	Reported Chain Ladder	Expected Loss Ratio	Bornhuetter-Ferguson
2011	9.9M	40.1M	24.7M	40.1M
2012	24.0M	62.5M	29.2M	62.5M
2013	27.7M	65.9M	27.3M	66.0M
2014	34.1M	66.2M	28.2M	66.2M
2015	32.2M	79.9M	30.2M	80.0M
2016	38.5M	64.1M	31.1M	64.5M
2017	41.5M	70.2M	35.6M	71.3M
2018	46.6M	65.7M	34.1M	68.2M
2019	38.2M	56.8M	37.0M	62.4M
2020	47.8M	49.6M	36.8M	61.7M

Reserving Methods

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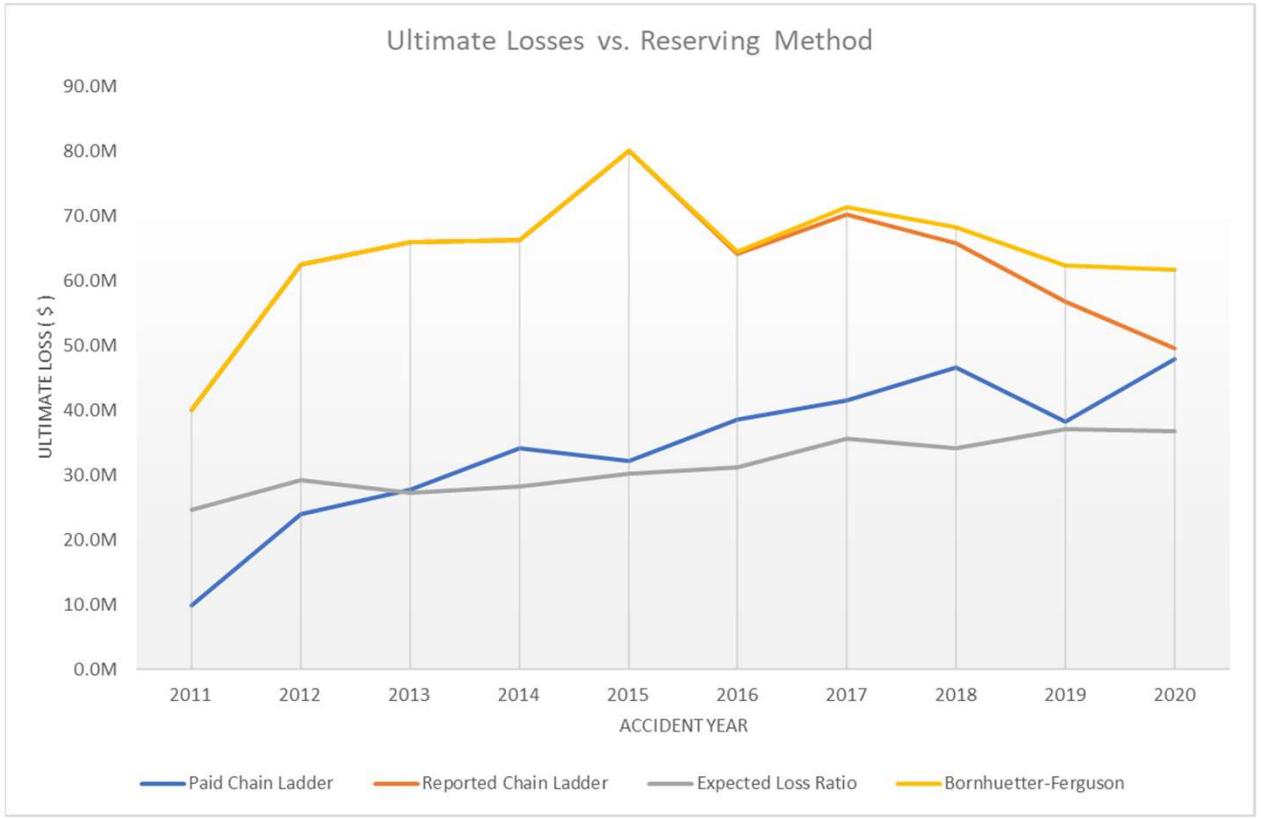
Since 2022



Lines of Business

02

Advantages and Disadvantages

Standardized Methods

Chain Ladder Methods

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Pros

- Helpful with consistent data projections

Cons

- Susceptible to process changes

Chain Ladder Methods

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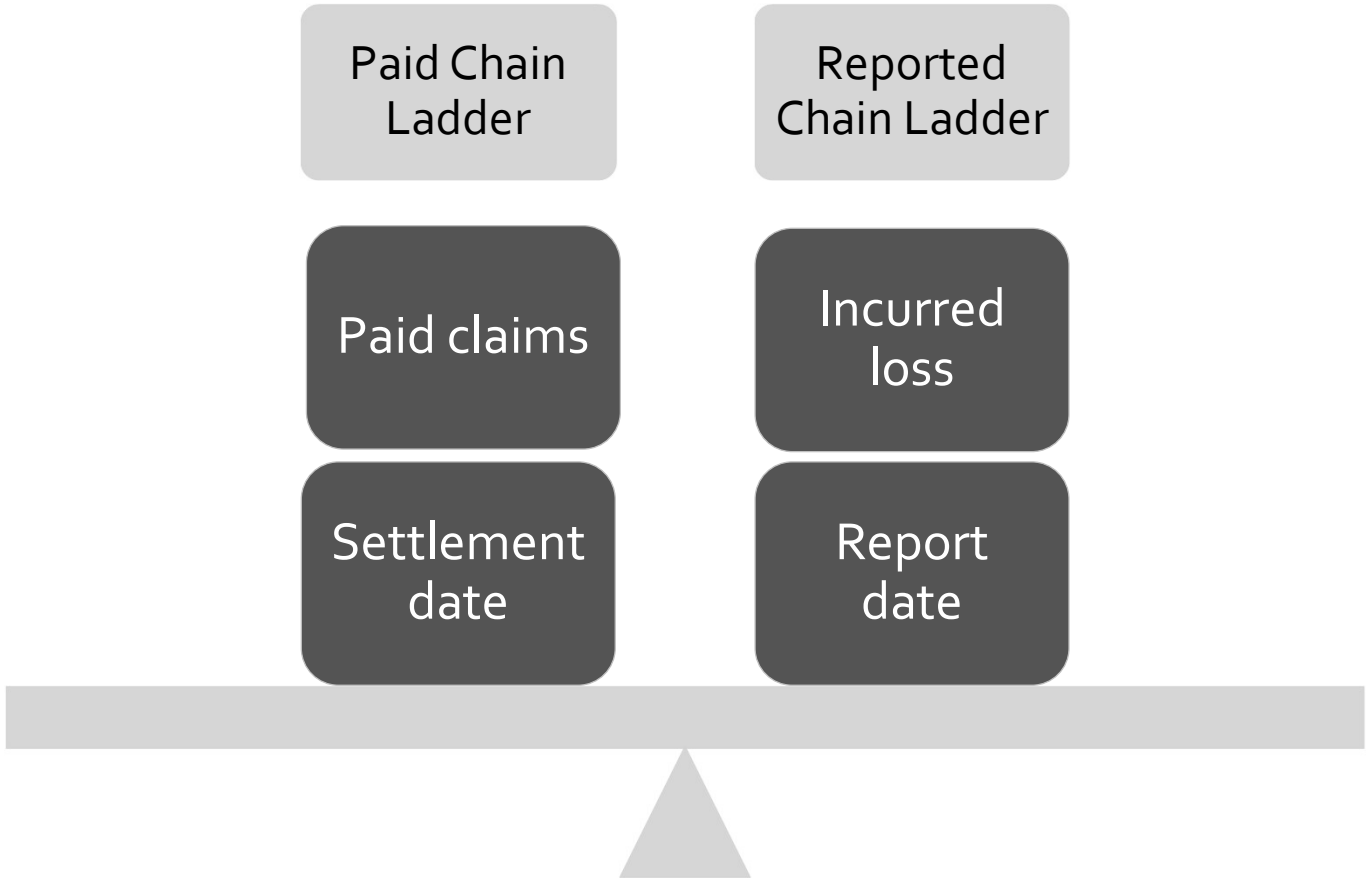

Expected Method

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estimates the appropriate level of loss reserves

- Helpful with a shortage of data 
- the absence of responsiveness to changes 

Expected Method

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Pros

- Effective usage in early stages of estimation

Cons

- Absence of responsiveness to changes for long established companies

Stability

Sensitivity

Bornheutter – Fergusson Method

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useful in cases where actual reported losses do not provide a good indicator of IBNR

combines features of the chain ladder and expected loss ratio methods and assigns weights for the percentage of losses paid and losses incurred

Cape Cod Method

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Assumption that premiums are known for historical accident years

- does not consider variability in historical loss estimates
- loss exposure is assumed to be constant over time

Ultimate Loss Selections – Homeowners

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Accident Year	Ultimate Losses (Expected Loss Method)	Ultimate Losses (Chain Ladder Method)	Recommended Ultimate Loss Selections
2011	$16.7M	$27.1M	$21.9M
2012	$20.4M	$45.4M	$32.9M
2013	$19.6M	$51.6M	$35.6M
2014	$20.0M	$50.6M	$35.3M
2015	$22.3M	$54.2M	$38.2M
2016	$22.5M	$49.5M	$36.0M
2017	$26.2M	$51.6M	$38.9M
2018	$26.0M	$46.7M	$36.4M
2019	$27.6M	$40.9M	$34.2M
2020	$27.5M	$35.7M	$31.6M

Ultimate Loss Selections – Auto Liabilities

BRUIN MUTUAL
Since 2022

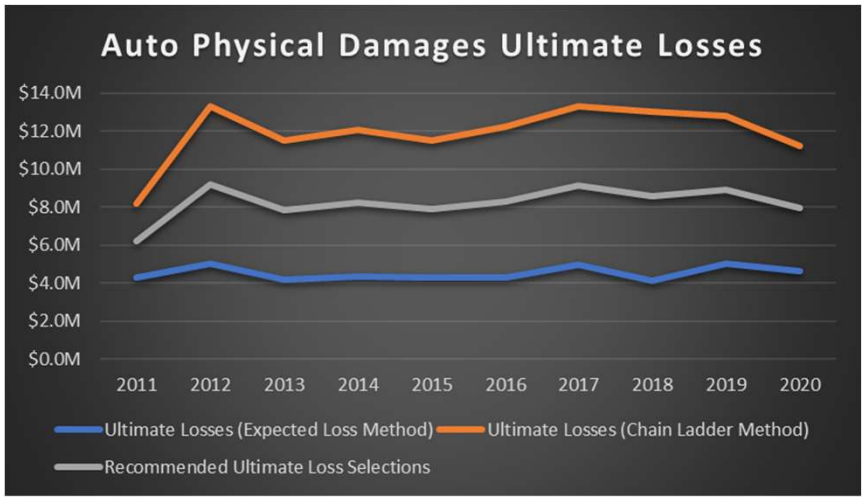
Accident Year	Ultimate Losses (Expected Loss Method)	Ultimate Losses (Chain Ladder Method)	Recommended Ultimate Loss Selections
2011	$3.7M	$1.5M	$2.6M
2012	$3.8M	$3.8M	$3.8M
2013	$3.5M	$2.9M	$3.2M
2014	$3.8M	$3.4M	$3.6M
2015	$3.6M	$2.6M	$3.1M
2016	$4.3M	$2.4M	$3.3M
2017	$4.4M	$5.4M	$4.9M
2018	$4.0M	$3.5M	$3.7M
2019	$4.4M	$2.4M	$3.4M
2020	$4.6M	$1.5M	$3.1M

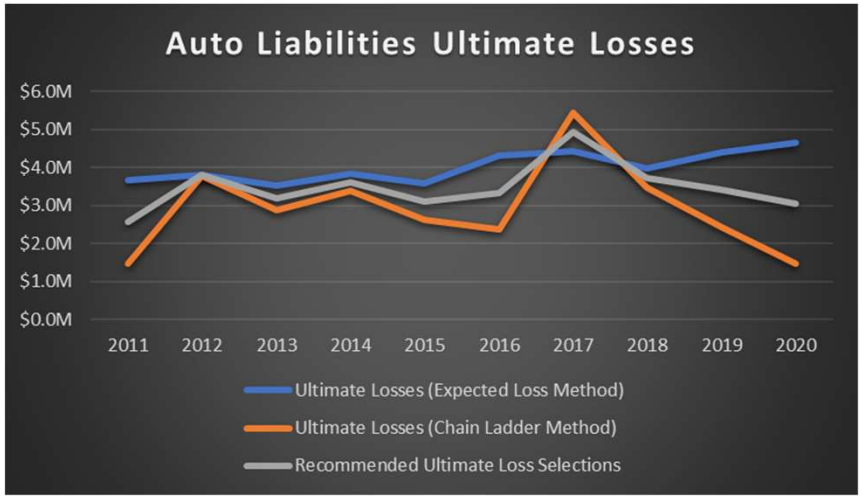
Ultimate Loss Selections – Auto Physdam

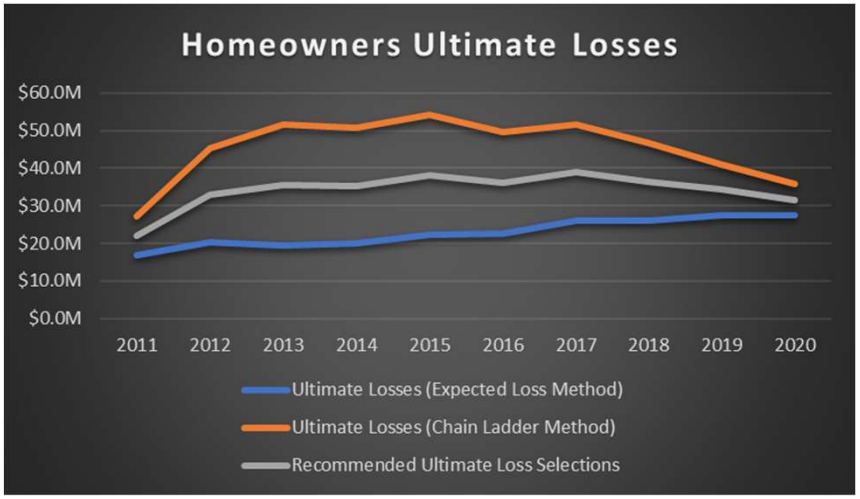
BRUIN MUTUAL
Since 2022

Accident Year	Ultimate Losses (Expected Loss Method)	Ultimate Losses (Chain Ladder Method)	Recommended Ultimate Loss Selections
2011	$4.3M	$8.2M	$6.2M
2012	$5.0M	$13.3M	$9.2M
2013	$4.2M	$11.5M	$7.9M
2014	$4.4M	$12.1M	$8.2M
2015	$4.3M	$11.5M	$7.9M
2016	$4.3M	$12.2M	$8.3M
2017	$5.0M	$13.3M	$9.2M
2018	$4.2M	$13.0M	$8.6M
2019	$5.0M	$12.8M	$8.9M
2020	$4.7M	$11.2M	$7.9M

Line of Business Comparison







Observations

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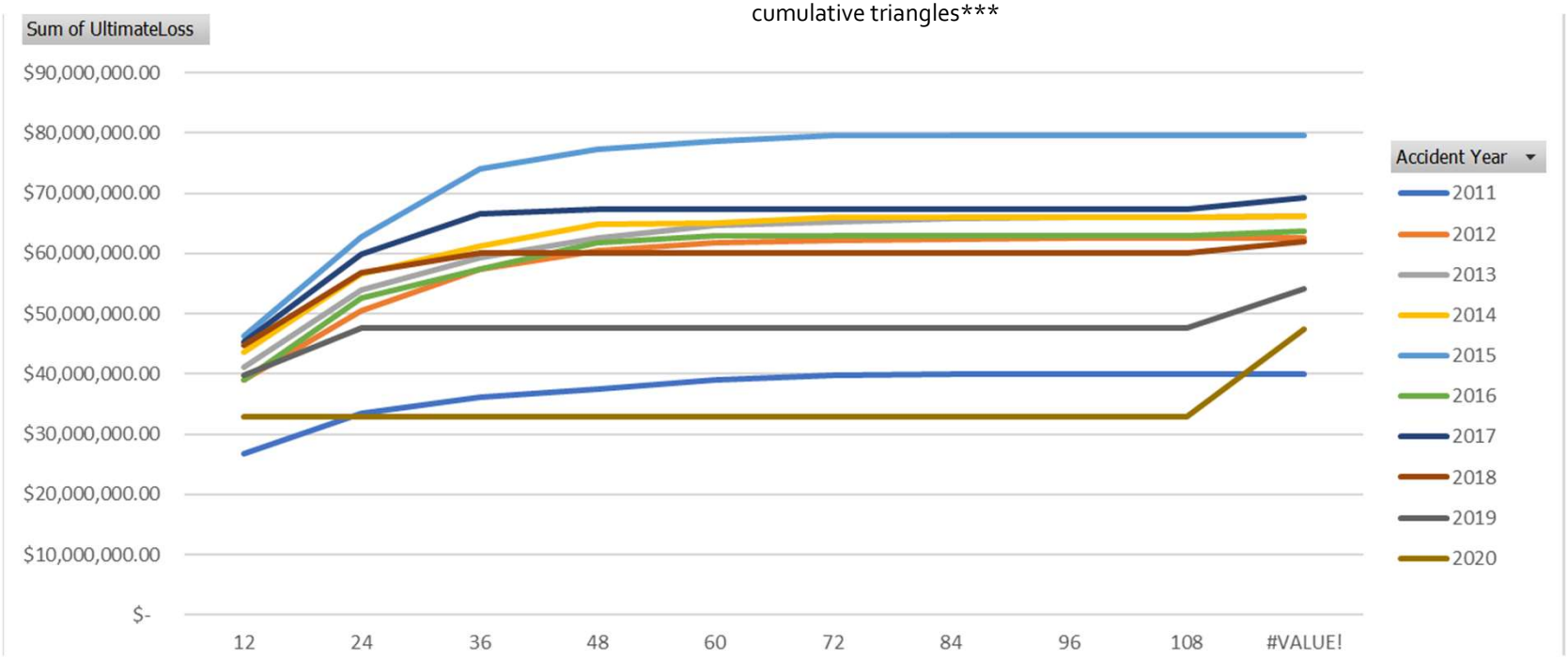
Extracted from cumulative triangles



Standardized Method

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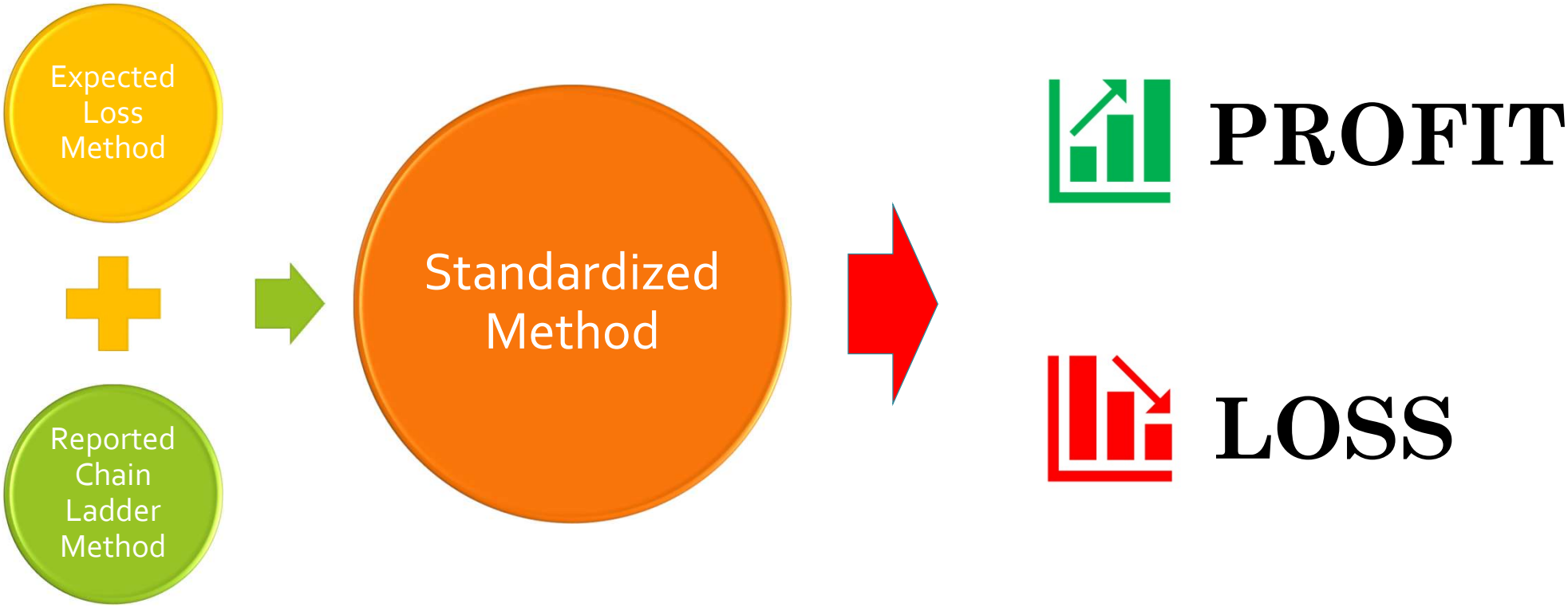

Catastrophe Reserving

03

Natural CATs

Man-Made CATs

Legal Aspect

Natural CATs

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- Can take a while to assess damage
- Can lead to hundreds, thousands of claims at once

Man-made CATs

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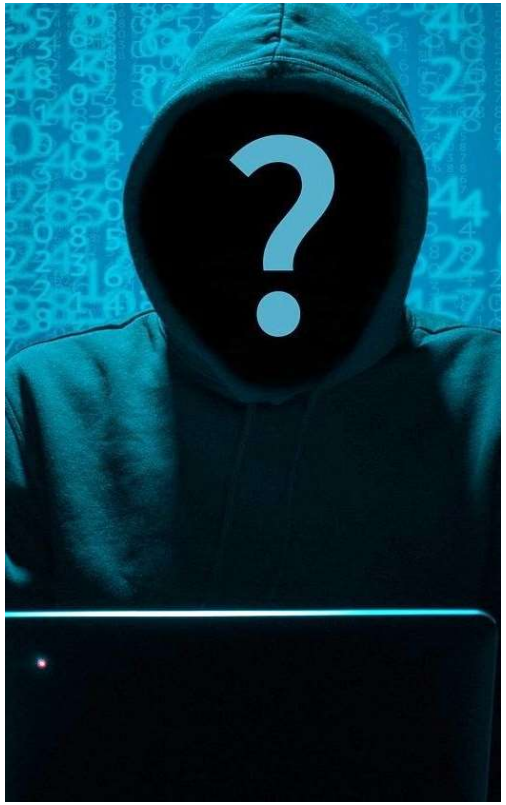
-Not a lot of data, difficult to predict
-Deliberate targeting to do maximum damage
-No existing forms of mitigation or infrastructure to limit damage like there exists for earthquakes or flooding



Legal Aspect

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- Response can vary by state
  - California Earthquake Authority - Privately Funded by Member insurance companies
- Costly, time-consuming litigation

CEA CALIFORNIA EARTHQUAKE AUTHORITY™
THE STRENGTH TO REBUILD®

Final Thoughts

04

Final Thoughts

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- Our ultimate loss analysis will be impactful on future decisions
- Focus on choosing a reliable reserving method for each line of business
- Any considered catastrophe reserving should be carefully considered


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Thank You!