2025
BAS Case Competition

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Agenda

1. Overview
2. Loss Volatility Exhibits
3. Program Stress Testing
4. Program Advisory

1 Overview

2 Loss Volatility Exhibits

3 Program Stress Testing

Overview

- Goal: Recommend best fit program for Montgomery Realty
- Method: Simulating annual aggregate loss statistics for Fire, NWS, and EQ; using this data to stress test each program
- Tools: Montgomery loss profile (2010-2024), CAT models, Python

1 Overview

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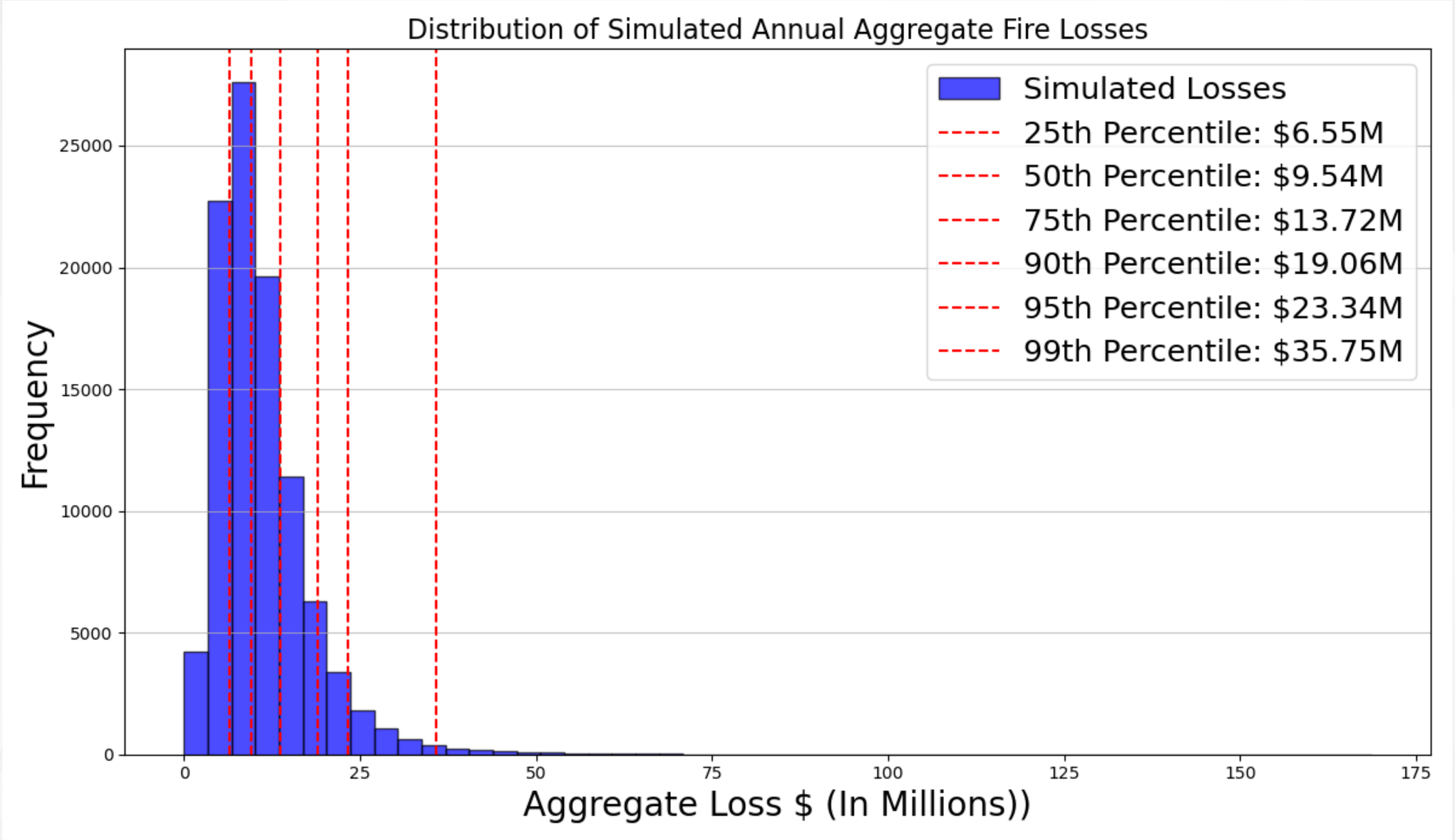
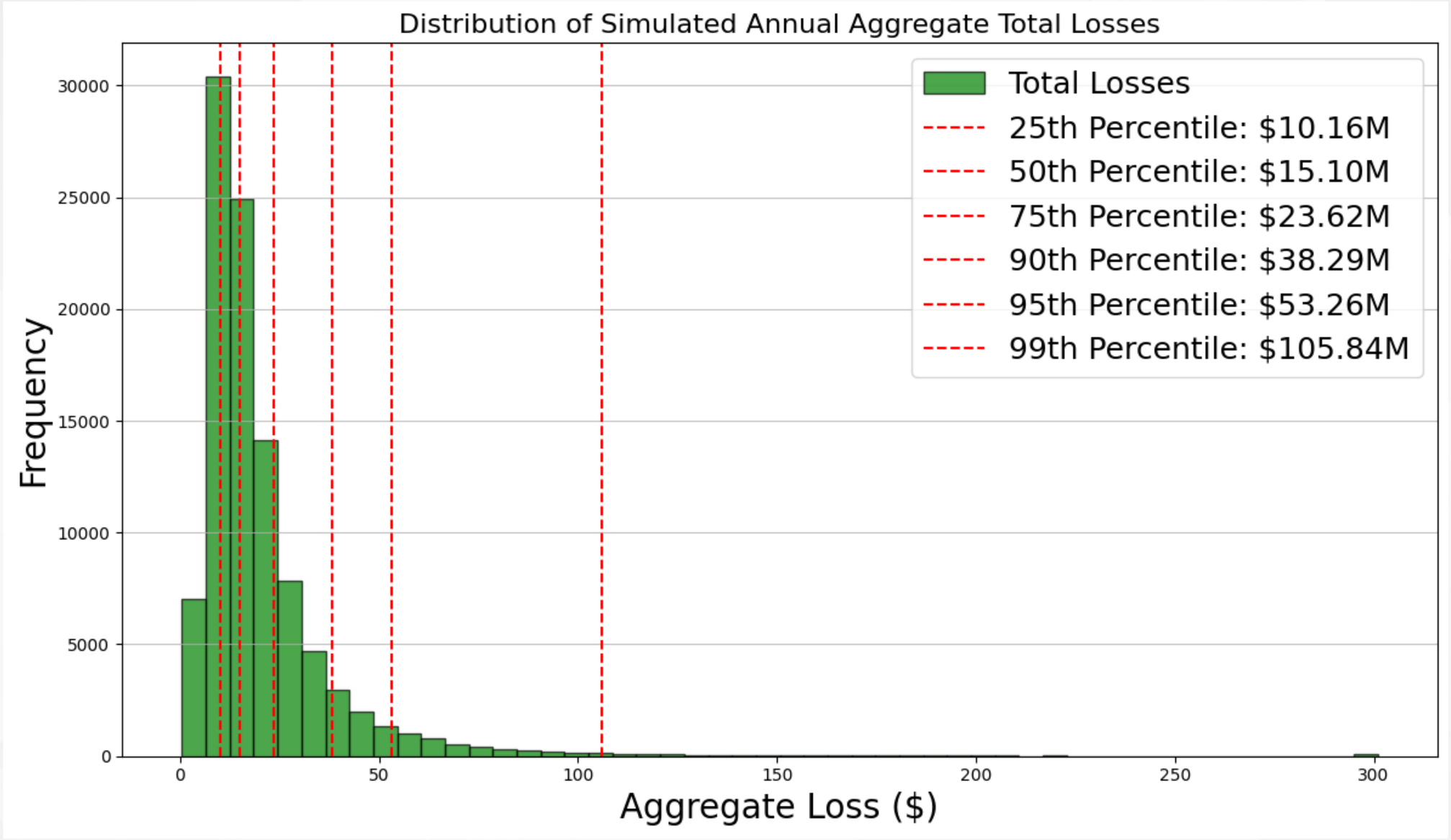
4 Program Advisory


Distribution of Simulated Annual Aggregate Fire Losses
Simulated Losses
25th Percentile: $6.55M
50th Percentile: $9.54M
75th Percentile: $13.72M
90th Percentile: $19.06M
95th Percentile: $23.34M
99th Percentile: $35.75M
Frequency
0
5000
10000
15000
20000
25000
0
25
50
75
100
125
150
175
Aggregate Loss $ (In Millions))


Distribution of Simulated Annual Aggregate Total Losses
Total Losses
25th Percentile: $10.16M
50th Percentile: $15.10M
75th Percentile: $23.62M
90th Percentile: $38.29M
95th Percentile: $53.26M
99th Percentile: $105.84M
Frequency
Aggregate Loss ($)
0
5000
10000
15000
20000
25000
30000
0
50
100
150
200
250
300

Total Aggregate Losses by Percentile

	Loss Type			
Statistic	Aggregate Fire Loss	Aggregate NWS Loss	Aggregate EQ Loss	**Total Aggregate Loss**
Mean	$11,065,030	$2,536,374	$7,469,352	$21,070,756
25th Percentile	$6,547,322	$841,862	$0	$10,159,731
50th Percentile	$9,538,599	$1,666,987	$0	$15,097,680
75th Percentile	$13,716,560	$3,074,466	$6,019,336	$23,618,575
90th Percentile	$19,059,320	$5,258,738	$21,040,590	$38,290,477
95th Percentile	$23,336,250	$7,229,981	$36,065,950	$53,264,845
99th Percentile	$35,750,270	$14,471,180	$89,913,280	$105,842,398
99.9th Percentile	$60,999,760	$40,013,190	$284,058,300	$298,219,177

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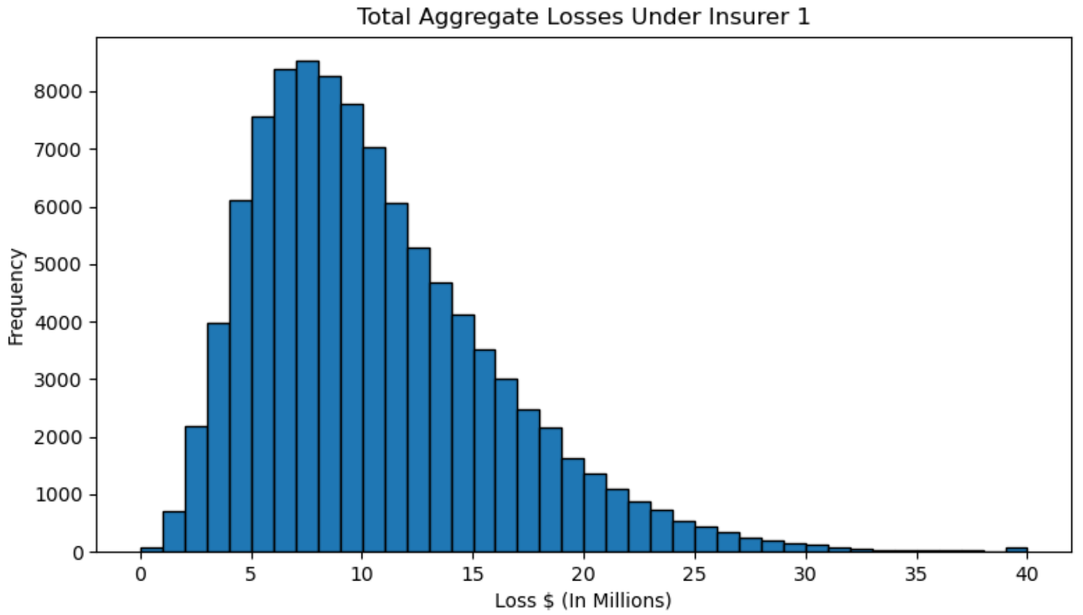
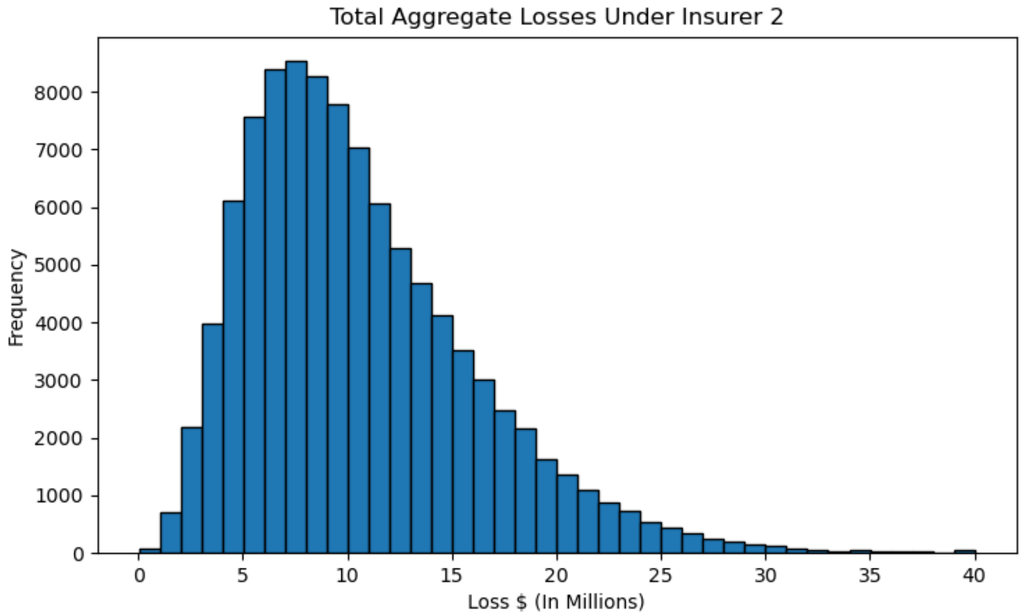
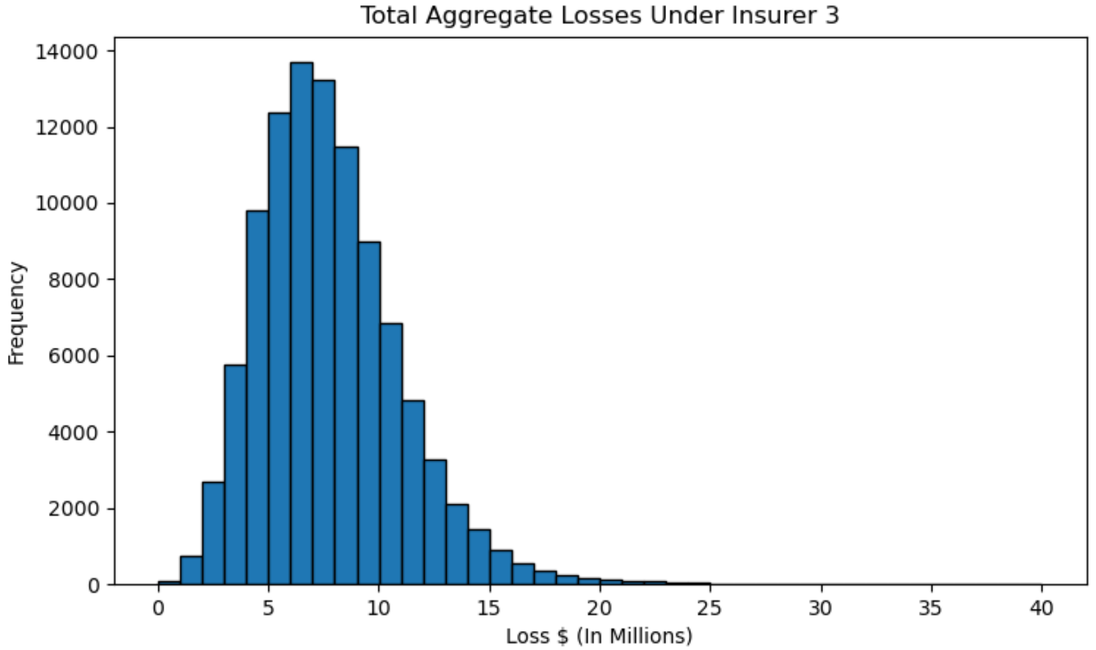
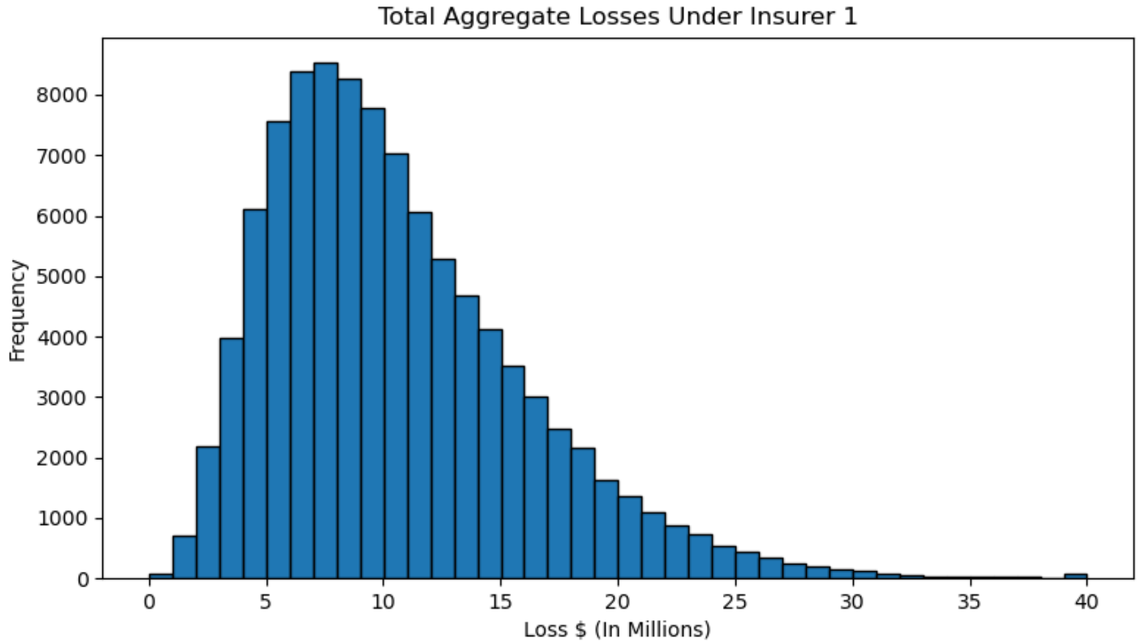
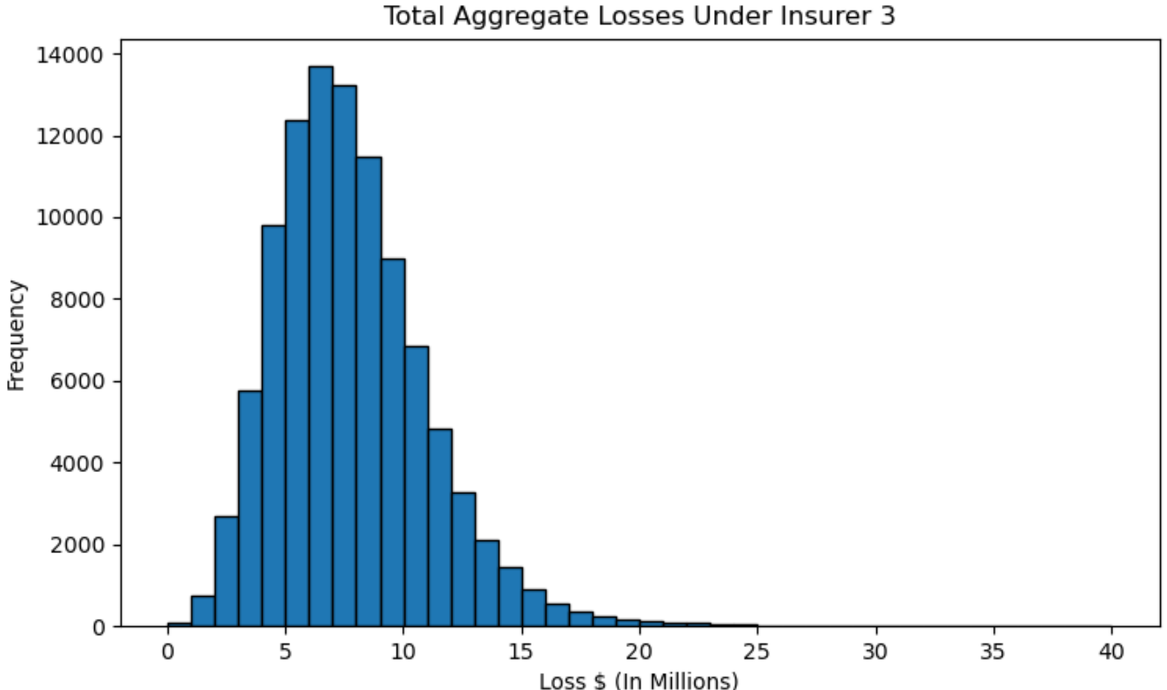






	Insurer 1	Insurer 2	Insurer 3
Retention	$10M per occurrence	$10M per occurrence	$1M per occurrence
Fire Limits	$1B per occurrence	$1B per occurrence	$1B per occurrence, with 30% co-insurance
NWS Limits	$100M per occurrence / $100M aggregate	$100M per occurrence	$100M per occurrence / $100M aggregate
EQ Limits	$500M per occurrence	$1B per occurrence	$1B per occurrence
Quoted premium	$51,270,000	$54,095,800	$59,411,000





Insights

- Performance is very similar under Insurers 1 and 2
- Under Insurer 2, performance is marginally better in the worst 1% of cases
- Insurer 3 decreases risk significantly, for a price

Percentile Performance for Total Losses After Insurance

Statistic	Losses After Policy 1	Losses After Policy 2	Losses After Policy 3
Mean Retained Amounts	$10,736,448	$10,672,700	$7,857,574
Standard Deviation	$19,854,985	$17,370,073	$16,785,018
25th Percentile	$6,548,896	$6,548,365	$5,516,386
50th Percentile	$9,540,845	$9,540,043	$7,381,235
75th Percentile	$13,651,283	$13,647,078	$9,558,099
90th Percentile	$18,119,270	$18,109,632	$11,887,442
95th Percentile	$21,103,904	$21,084,847	$13,550,714
99th Percentile	$27,329,690	$27,227,328	$17,486,652
99.9th Percentile	$36,585,057	$35,770,421	$25,357,183

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Key Metrics to Consider

Lowest Premium

Total Retained Amount

Average Total Cost of Risk

Conditional Tail Expectation

Lowest Premium

Insurer 1

$51,270,000

	Insurer 1	Insurer 2	Insurer 3
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NWS Limits	$100M per occurrence / $100M aggregate	$100M per occurrence	$100M per occurrence / $100M aggregate
EQ Limits	$500M per occurrence	$1B per occurrence	$1B per occurrence
Quoted premium	$51,270,000	$54,095,800	$59,411,000

Lowest Total Retained at 50th Percentile

Insurer 3

$7,381,235

Statistic	Losses After Policy 1	Losses After Policy 2	Losses After Policy 3
Mean Retained Amounts	$10,736,448	$10,672,700	$7,857,574
Standard Deviation	$19,854,985	$17,370,073	$16,785,018
25th Percentile	$6,548,896	$6,548,365	$5,516,386
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Least Average Total Cost of Risk (TCOR)

Policy	Fire	NWS	EQ	Premium	TCOR
1	$10,596,887	$8,638	$130,922	$51,270,000	**$62,006,447**
2	$10,596,887	$8,290	$67,522	$54,095,800	**$64,700,977**
3	$7,781,413	$8,638	$67,522	$59,411,000	**$67,268,573**

Insurer 1

$62,006,447

Conditional Tail Expectation (TVaR)

Policy	TVaR
1	$ 44,073,367
2	$ 38,017,831
3	$ 28,156,054

Our Policy Recommendation

Select Insurer 1

- Insurers 1 and 3 perform well when considering all of the Key Metrics
- Financial constraints at Montgomery
- Due to its lower premium, the net cost to Montgomery under Insurer 1 is lower in 99% of cases

Total Cost of Risk

Percentile	Insurer 1	Insurer 3
90th	$69,389,270	$71,298,442
95th	$72,373,904	$72,961,714
99th	$78,599,690	$76,897,652
99.9th	$87,855,057	$84,768,183

Revised Premium

- Per our CAT models, the aggregate limit on NWS is rarely reached
- Insurer 2 has no aggregate limit on NWS, but its higher earthquake coverage contributes heavily to its higher premiums vs. Insurer 1
- Therefore, we would suggest a revised premium of **$52,700,000**

Thank You!
Q & A