

Initial Margin Confidence Interval Analysis

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March 24, 2020

- Backtesting was conducted on the three confidence intervals which are currently under consideration
- The failure rate shows the percentage of instances where the initial margin that was calculated was insufficient to cover the actual market moves that occurred

Confidence Interval	Failure Rate
99%	0.65%
97%	0.90%
95%	1.21%

In case of a failure, what is the loss above the IM?

- The expected shortfall indicates the percentage difference between the IM and the loss above the IM when there was a failure
- Results are for **Confidence Interval of 99%**:

IM Range (million USD)	Shortfall (% of IM)	Average Shortfall (\$ in MM)	Max Shortfall (\$ in MM)	Failure Rate (%)	Count of Observations
0-1	52	0.06	0.79	0.48%	76
1-3	43	0.76	2.32	0.06%	10
3-10	13	0.63	1.48	0.06%	9
10 and above	37	7.19	22.29	0.04%	7

In case of a failure, what is the loss above the IM?

- The expected shortfall indicates the percentage difference between the IM and the loss above the IM when there was a failure
- Results are for **Confidence Interval of 97%**:

IM Range (million USD)	Shortfall (% of IM)	Average Shortfall (\$ in MM)	Max Shortfall (\$ in MM)	Failure Rate (%)	Count of Observations
0-1	53	0.08	0.87	0.64%	109
1-3	49	0.80	2.62	0.08%	13
3-10	18	1.07	7.37	0.12%	20
10 and above	32	5.63	25.41	0.06%	11

In case of a failure, what is the loss above the IM?

- The expected shortfall indicates the percentage difference between the IM and the loss above the IM when there was a failure
- Results are for **Confidence Interval of 95%**:

IM Range (million USD)	Shortfall (% of IM)	Average Shortfall (\$ in MM)	Max Shortfall (\$ in MM)	Failure Rate (%)	Count of Observations
0-1	54	0.08	0.89	0.81%	138
1-3	32	0.55	2.74	0.17%	29
3-10	19	1.07	8.10	0.15%	26
10 and above	37	5.98	26.71	0.08%	13