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Effect of Reinsurance on Retained Risk (Practice)
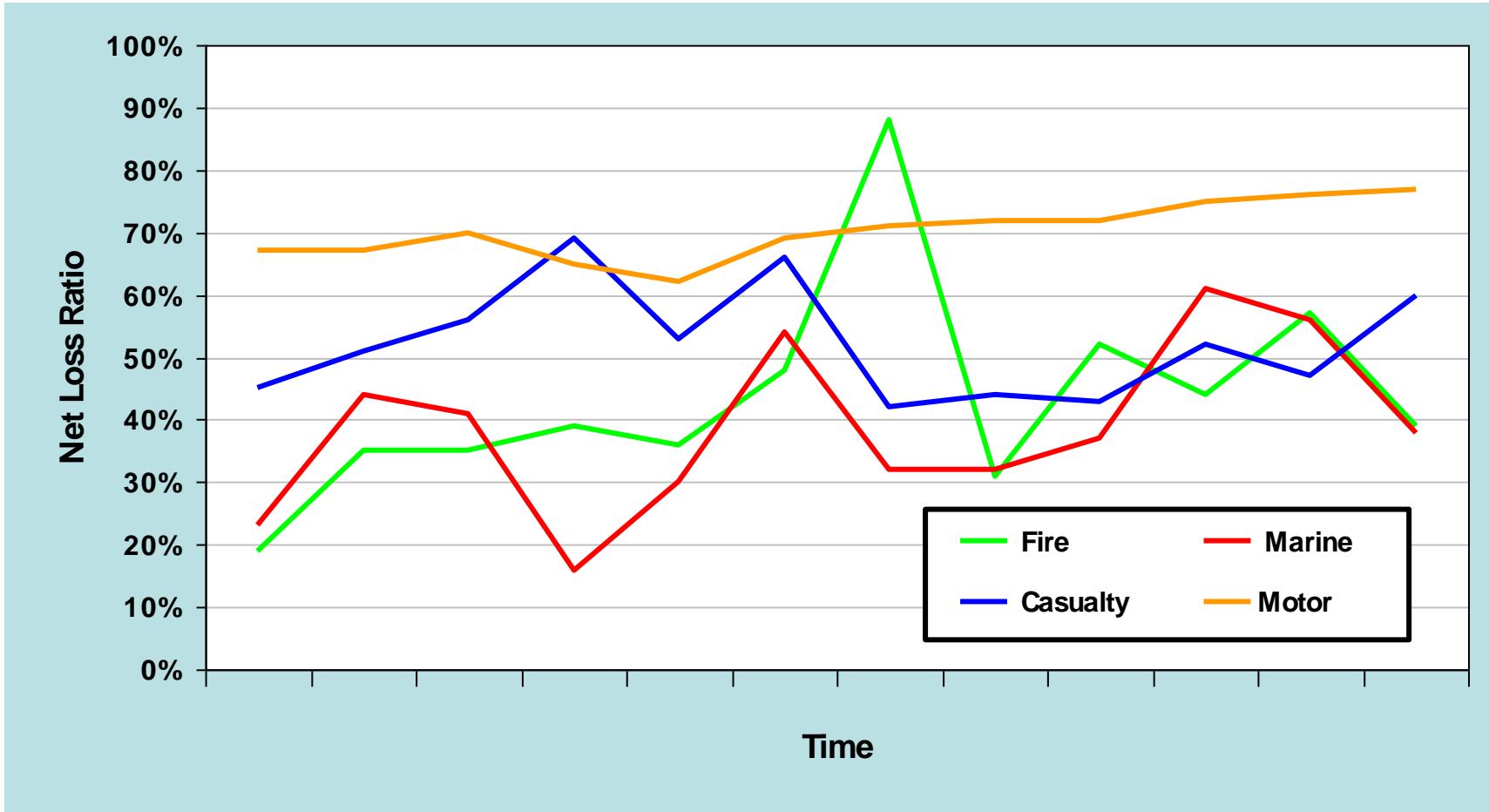
A Swiss Re Presentation

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Example A

- Developing Asian country
- Market leader
  - *leading market share in national market*
- Mainly retail customer base
  - *well known brand name*
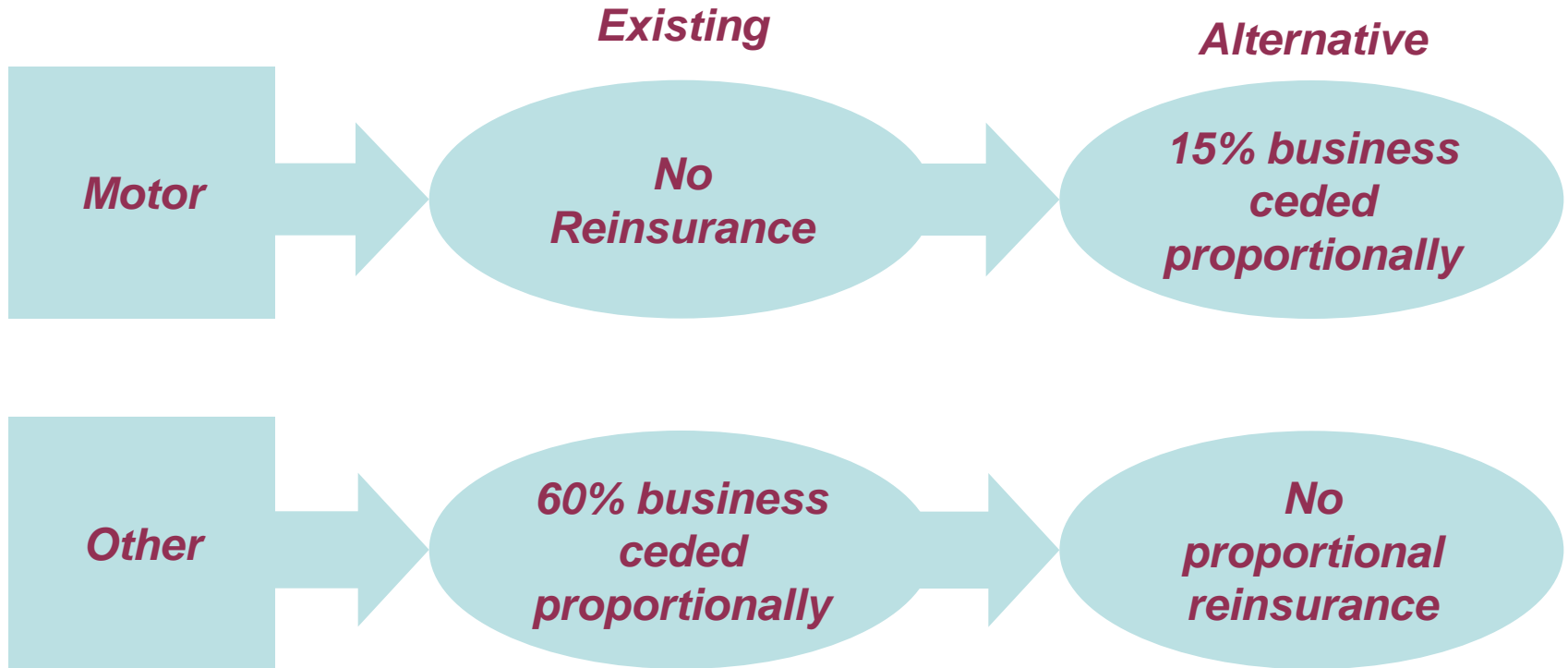- Some commercial lines business
  - *growing*

Actual Statistics

	Volatility (Standard deviation of Net Loss Ratio)	Percentage of business (net premium)	
Fire	17.2%	1%	1%
Marine	13.5%	2%	2%
Casualty	8.9%	7%	9%
Motor	4.5%	88%	91%
Total	4.0%	100%	

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Reinsurance

Existing

Alternative

Motor → *No Reinsurance* → *15% business ceded proportionally*

Other → *60% business ceded proportionally* → *No proportional reinsurance*

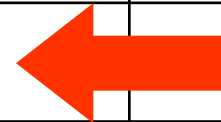**Negligible increase in income**

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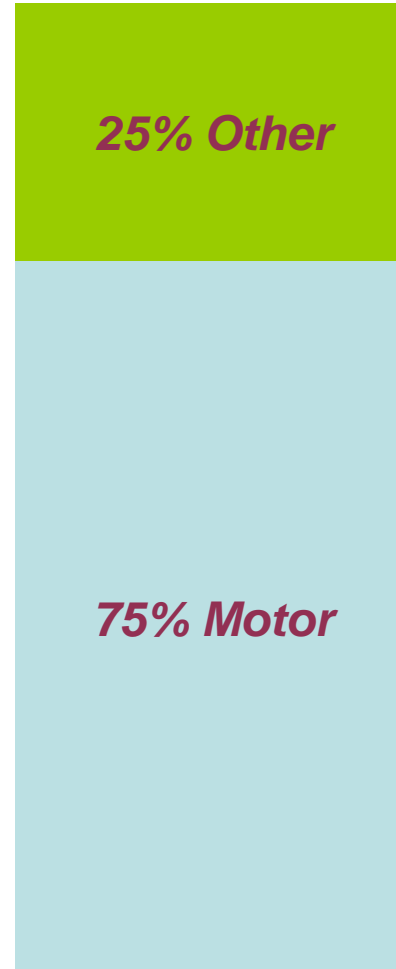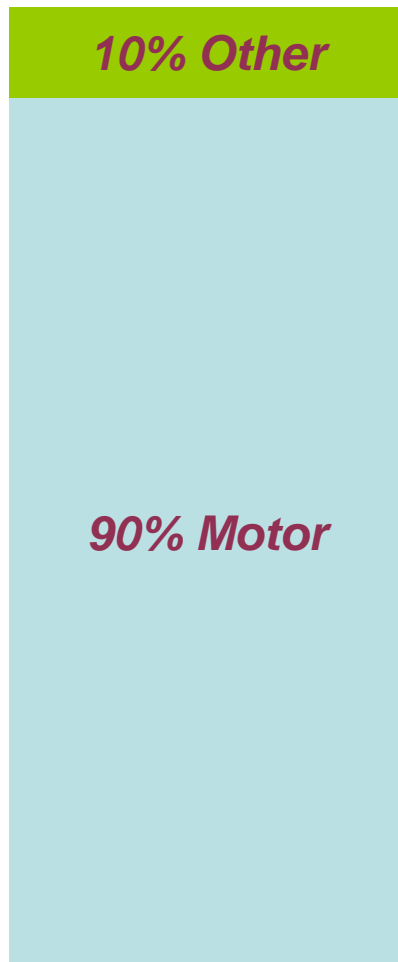
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Example A

Alternative Reinsurance

	"As if" Volatility (Standard deviation of Net Loss Ratio)	Actual Volatility (Standard deviation of Net Loss Ratio)
Fire	17.2%	17.2%
Marine	13.5%	13.5%
Casualty	8.9%	8.9%
Motor	4.5%	4.5%
Total	3.8% ⬅	4.0%

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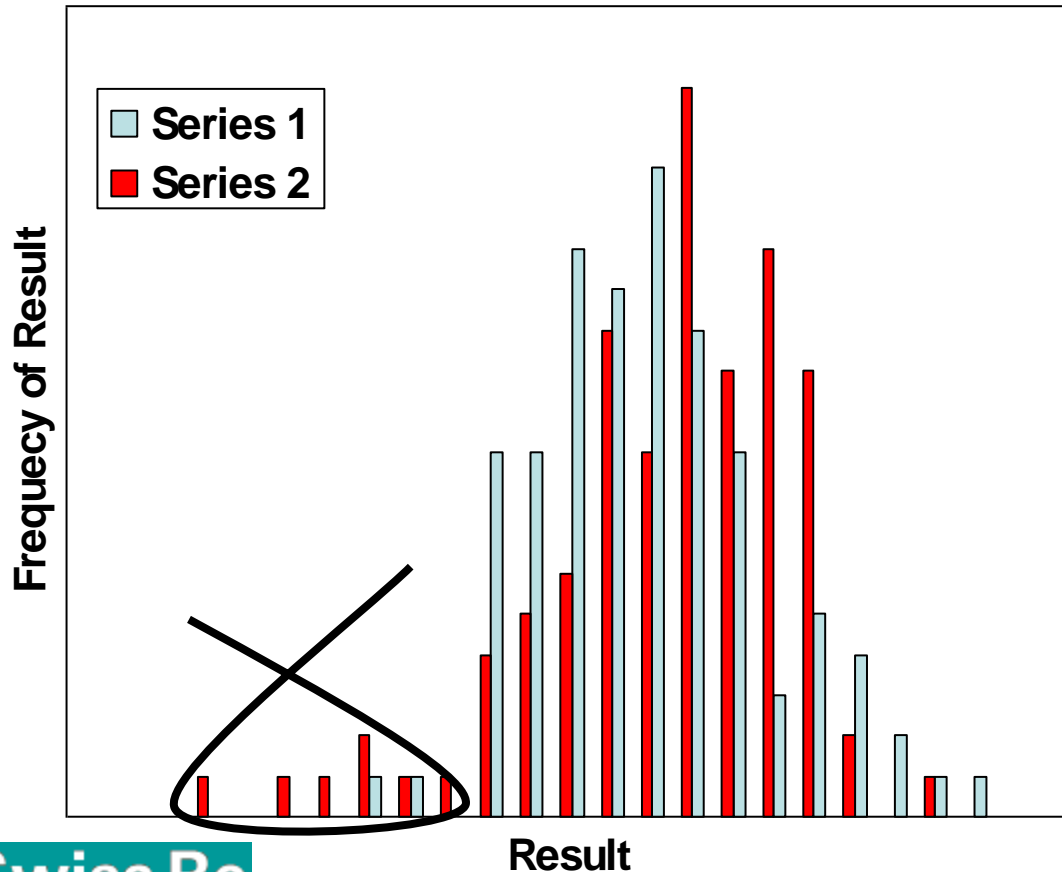
Change mix of business

Questions

- ## Should reinsurance be a
  - *business unit tool or*
  - *management tool*

- ## Was this alternative ever considered?

- ## What are the knock on effects?
  - *limits of cover under fire are very large*
  - *need additional per risk cover perhaps?*

- ## Is standard deviation a good measure of risk?

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Types of Risk

- ## Result Volatility
  - *One off large claims*
  - *Unusual high number of medium claims*
  - *Unusual higher number of claims*
  - *Systemic pricing deficiencies*

Standard deviation okay

Extreme ➔

- ## Insufficient Capital
  - *To meet solvency requirements*
  - *To meet obligations*

Alternative measure required

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Example B

- Commercial Property Insurance

- Exposure to
  - *Frequency of small claims*
  - *Large fire claims*
  - *Earthquake claims*

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Loss Profile

Premium	100,000,000	100,000,000	100.0%
Expenses	25%	(25,000,000)	25.0%
Underlying Losses	Normal Distribution Mean 50% Standard Deviation 5%	(50,000,000)	50.0%
Large Losses	Definition 500,000 Maximum 20,000,000 Poisson with mean 5 Pareto 500,000 & 1.2	(11,500,000)	11.5%
Event Losses	Definition 5,000,000 Maximum 100,000,000 Poisson with mean 0.2 Pareto 5,000,000 & 0.9	(4,400,000)	4.4%
Total Expected Result		9,100,000	9.1%

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Reinsurance Options

	All Types	**QS + Cat**	**Risk + Cat**
Quota Share	✔	✔	
Per Risk XoL	✔		✔
Cat XoL	✔	✔	✔

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Reinsurance Options

	All Types	**QS + Cat**	**Risk + Cat**
Quota Share	**50% Cession** 27% Commission	**50% Cession** 27% Commission	None
Per Risk XoL	**$500k Retention** 10 free reinstatements $4.4m Premium[1]	None	**$500k Retention** 10 free reinstatements $11.2m Premium[1]
Cat XoL	**$5m Retention** 1 Reinstatement (100%) $1.65m Premium[1]	**$5m Retention** 1 Reinstatement (100%) $1.65m Premium[1]	**$5m Retention** 1 Reinstatement (100%) $4.31m Premium[1]

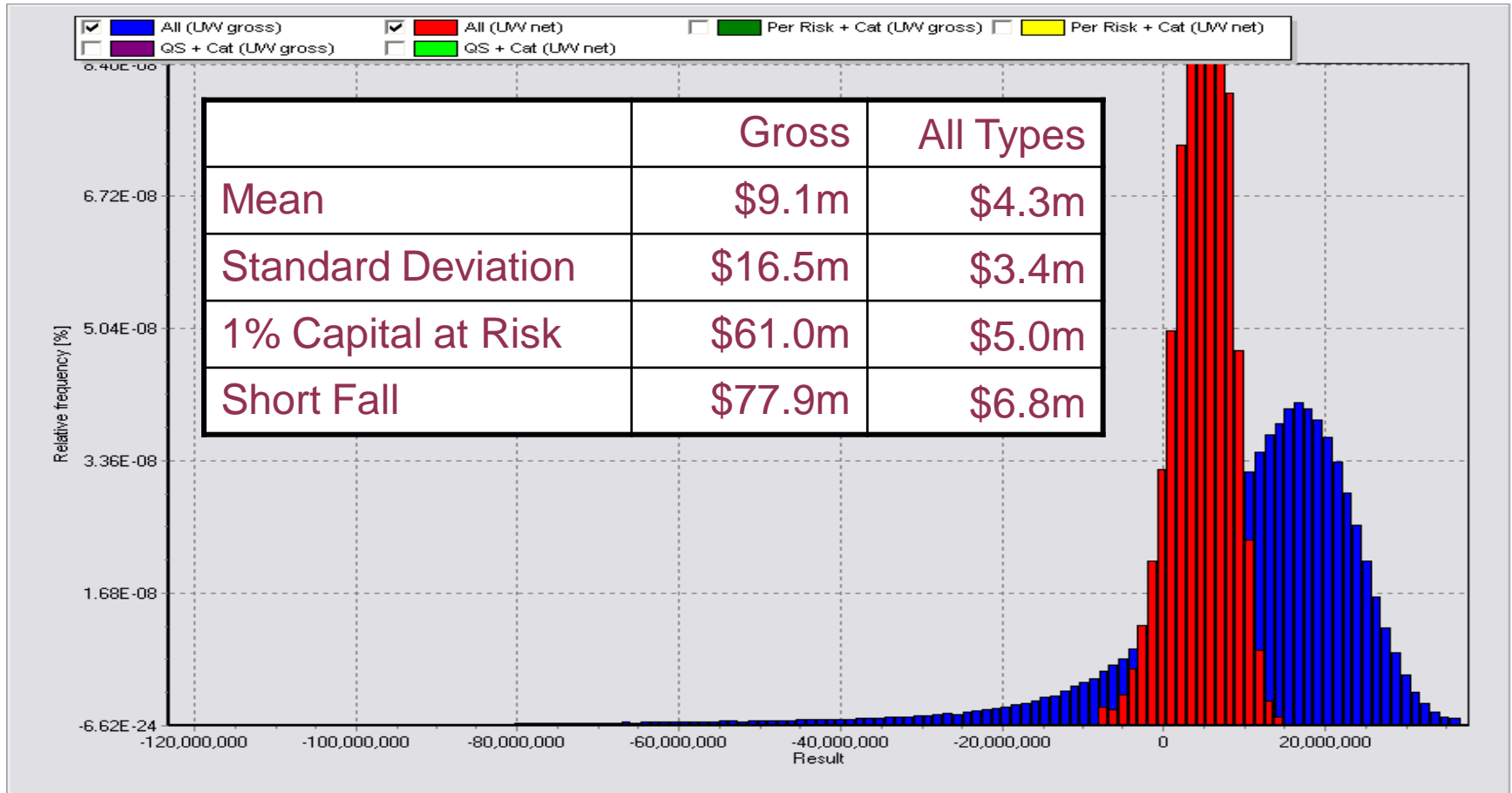1. **Reinsurance premium = risk premium + 25%**

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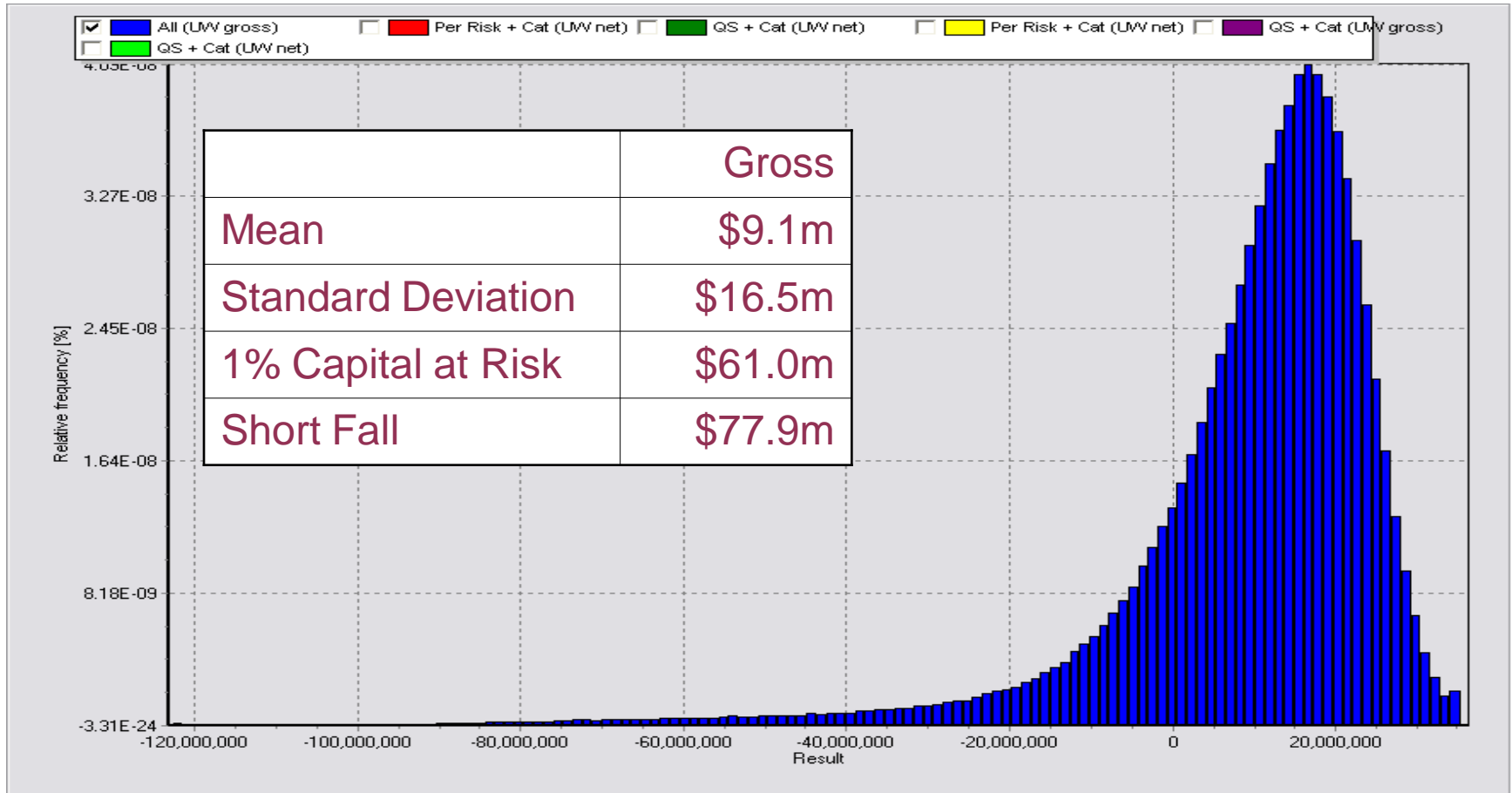
Example B

With All Reinsurance Types

	Gross	All Types
Mean	$9.1m	$4.3m
Standard Deviation	$16.5m	$3.4m
1% Capital at Risk	$61.0m	$5.0m
Short Fall	$77.9m	$6.8m

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Consider the Options

	Gross	All Types	QS + Cat	PR+ Cat
Mean	$9.1m	$4.3m	$5.2m	$5.9m
Standard Deviation	$16.5m	$3.4m	$5.2m	$5.9m
1% Capital at Risk	$61.0m	$5.0m	$9.7m	$7.8m
Short Fall	$77.9m	$6.8m	$12.7m	$10.0m

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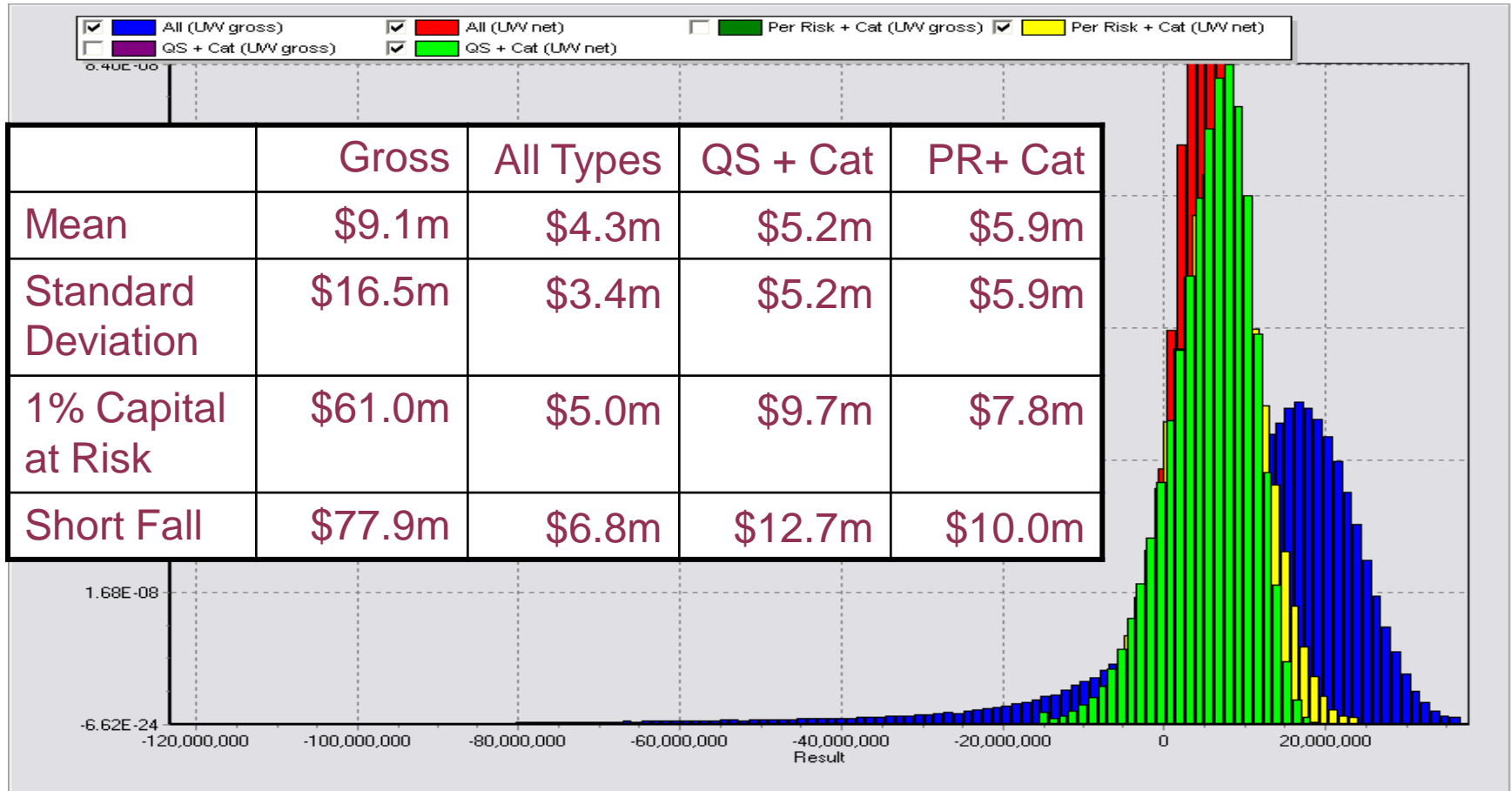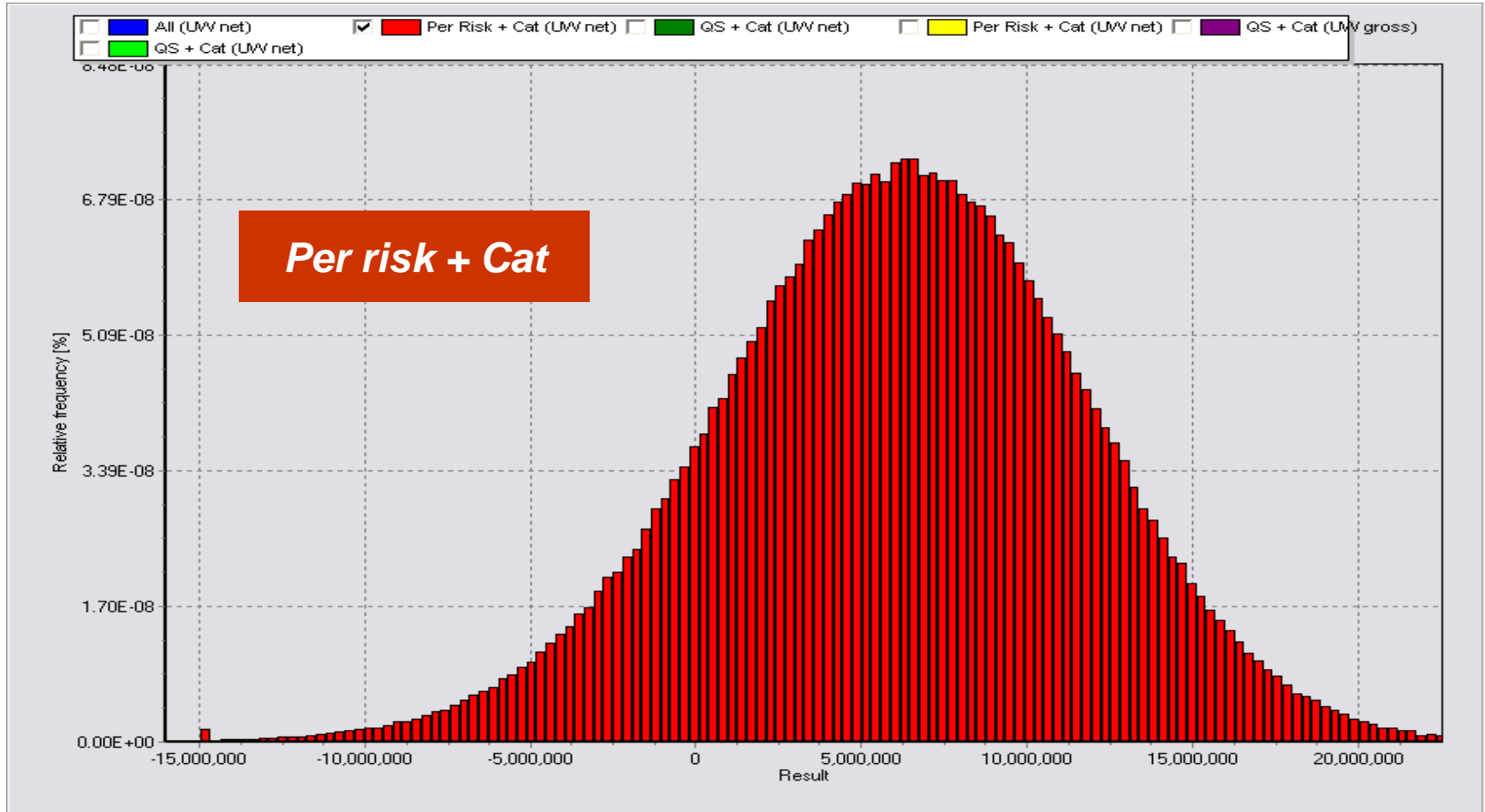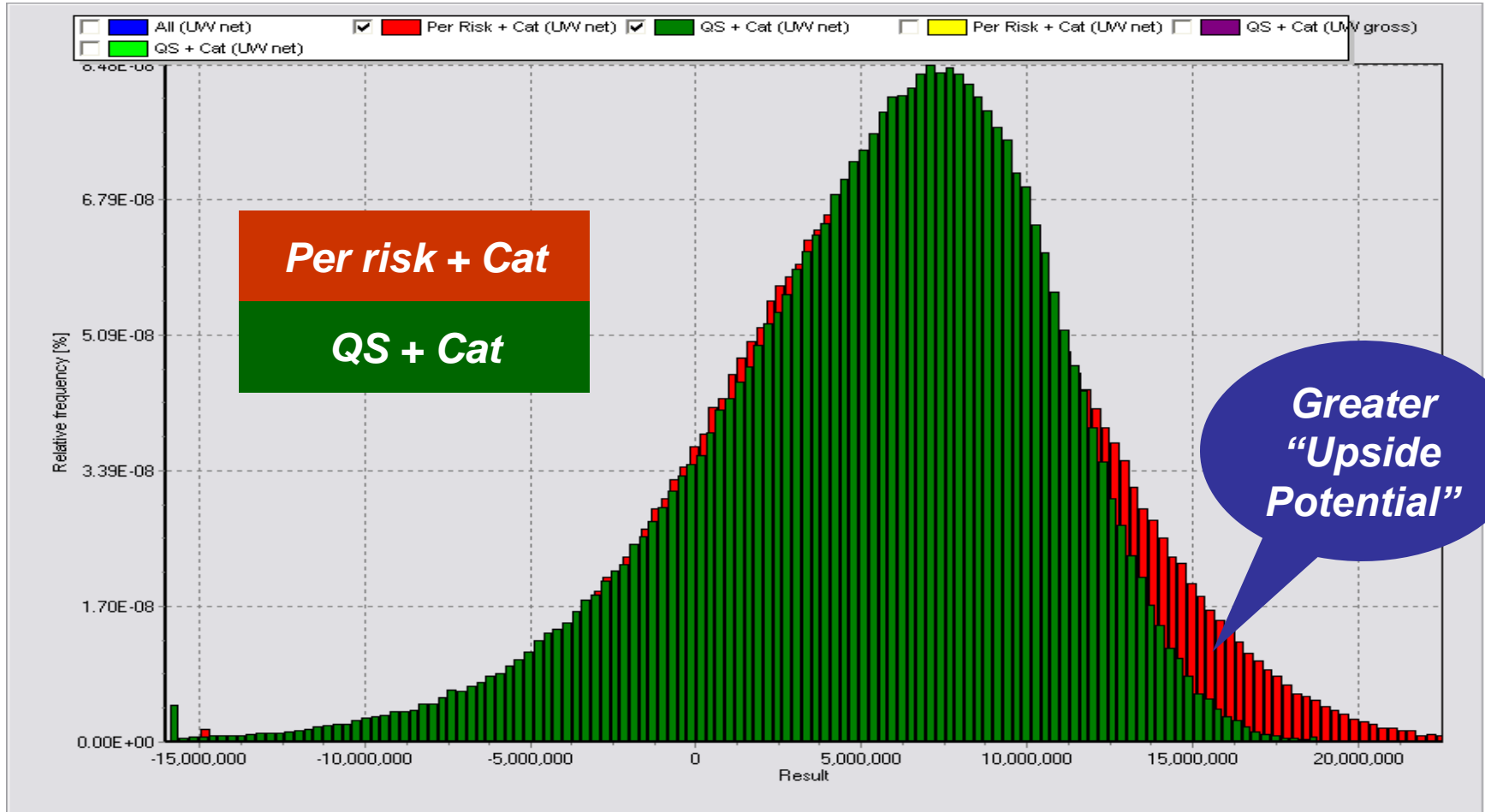
Summary

- Different reinsurance programs give different retained risk profiles

- Risk vs Reward
  - *but different types of risk*

- Actively manage risk and reinsurance
  - *to provide competitive advantage*

Contact Details

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