

GUY CARPENTER

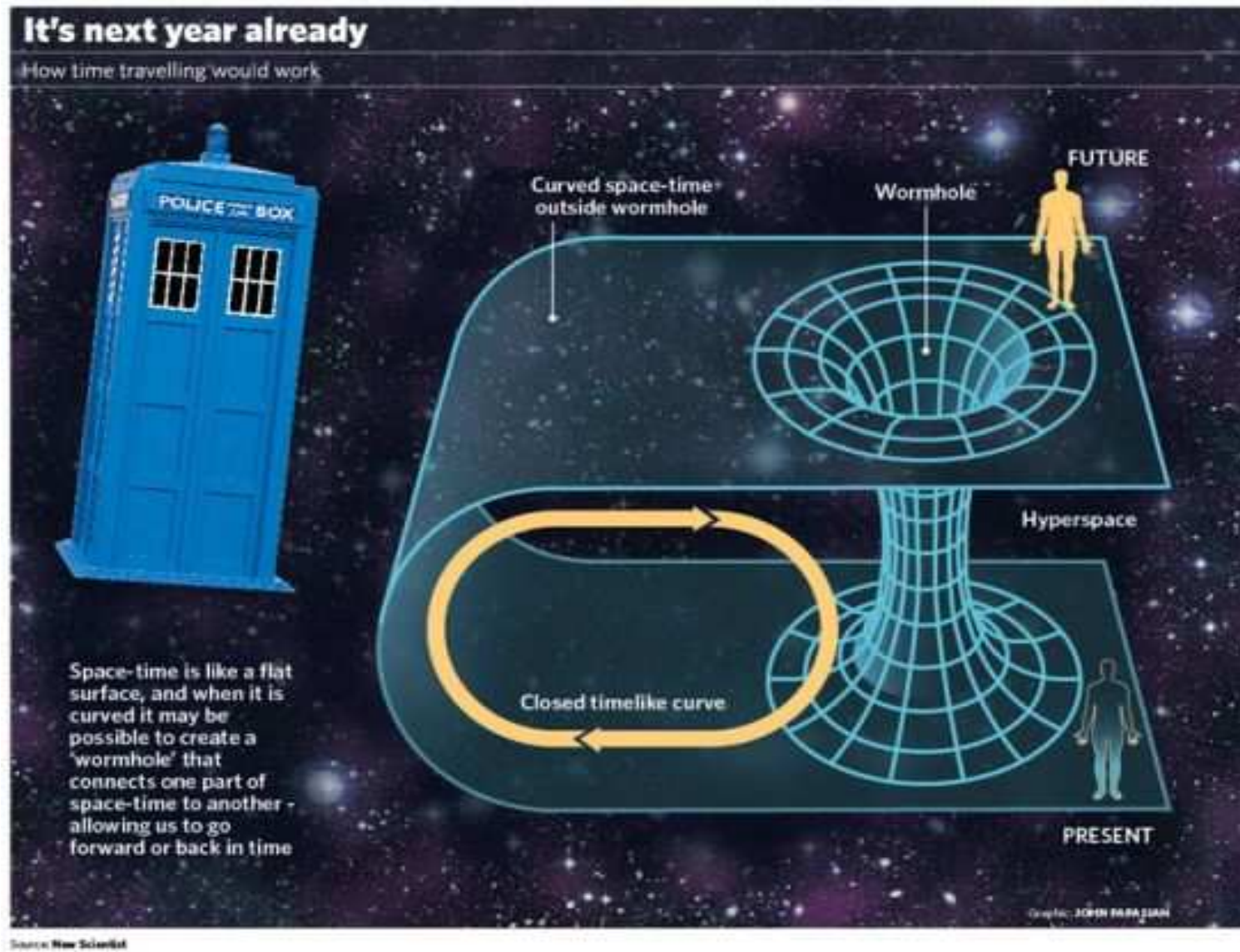


**Reserve Risk : Are my
bootstraps too tight?**

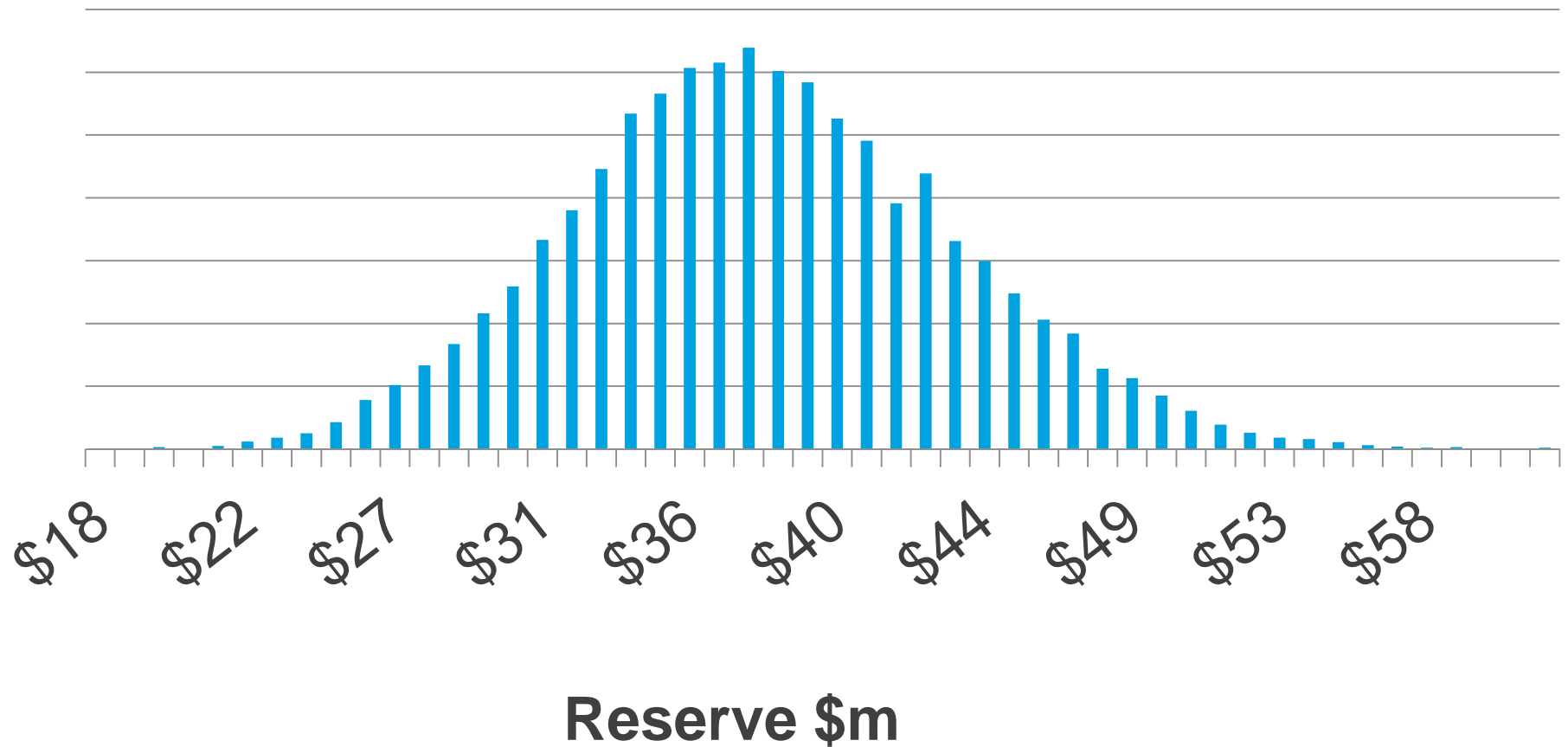
Jessica Leong, FCAS, FIAA, MAAA

Lead Casualty Specialty Actuary

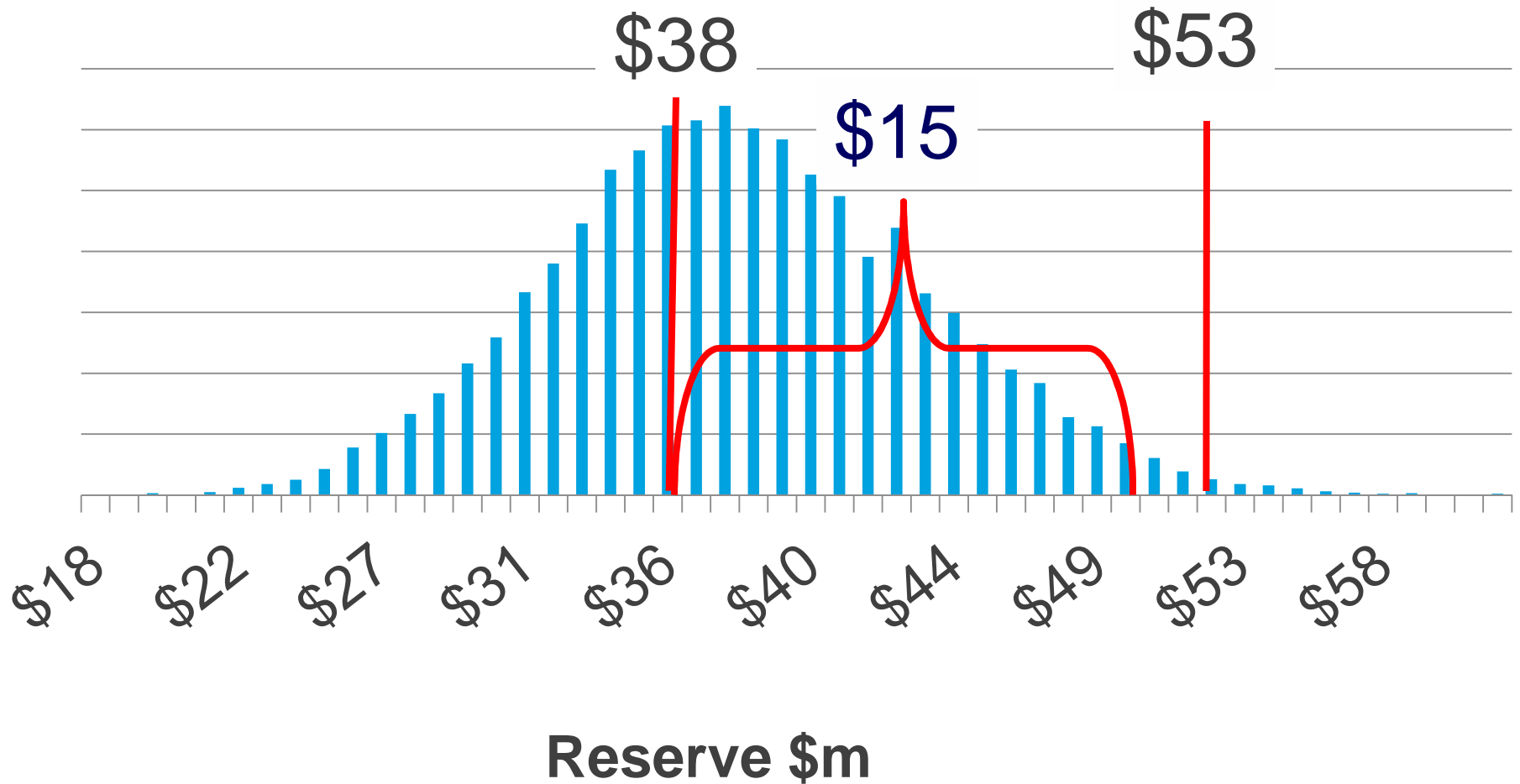
Reserve Risk: Are my bootstraps too tight?



Company A Distribution of Homeowners Unpaid as of 12/2000



Company A Distribution of Homeowners Unpaid as of 12/2000



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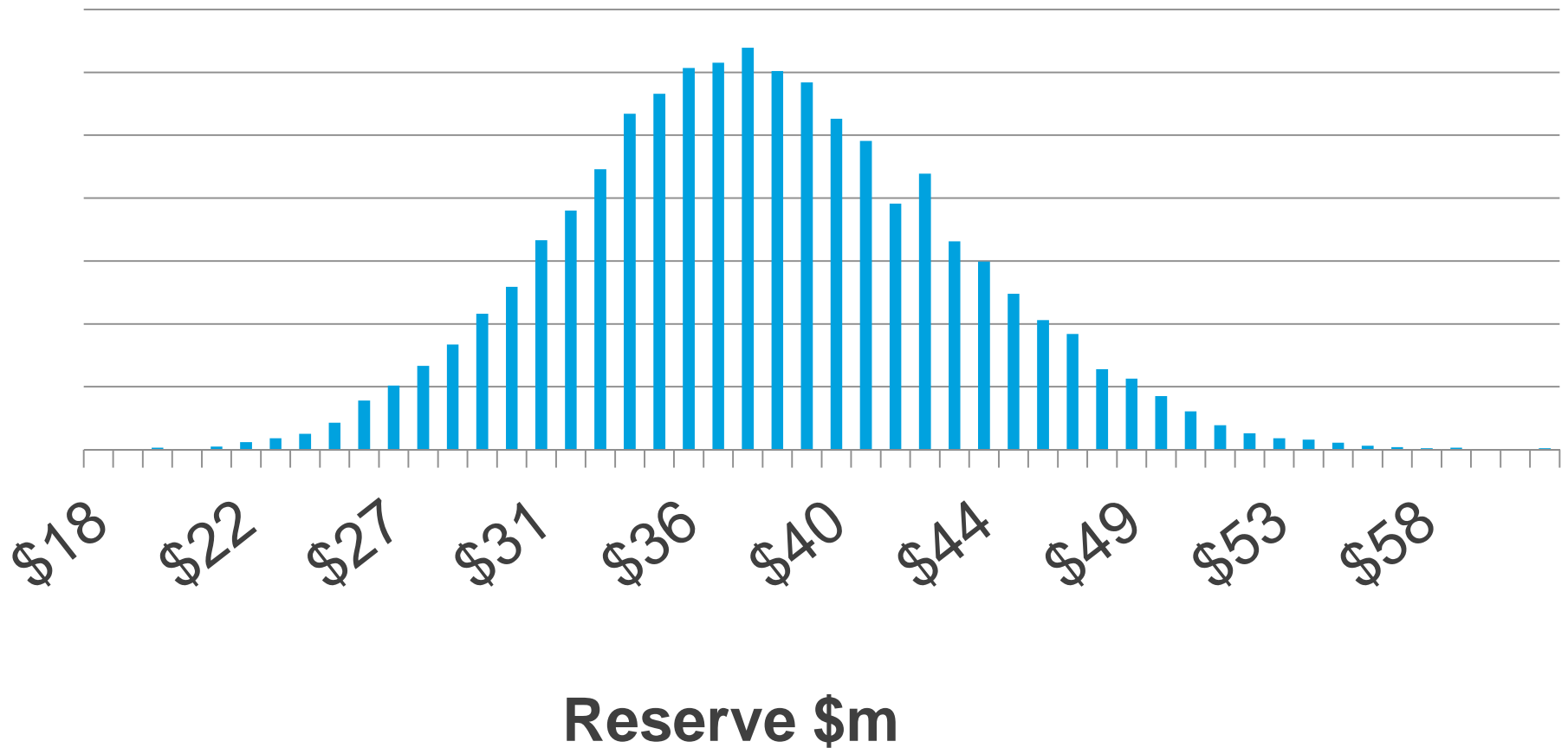
1. Are my bootstraps too tight?
2. Why?
3. What can I do about it?

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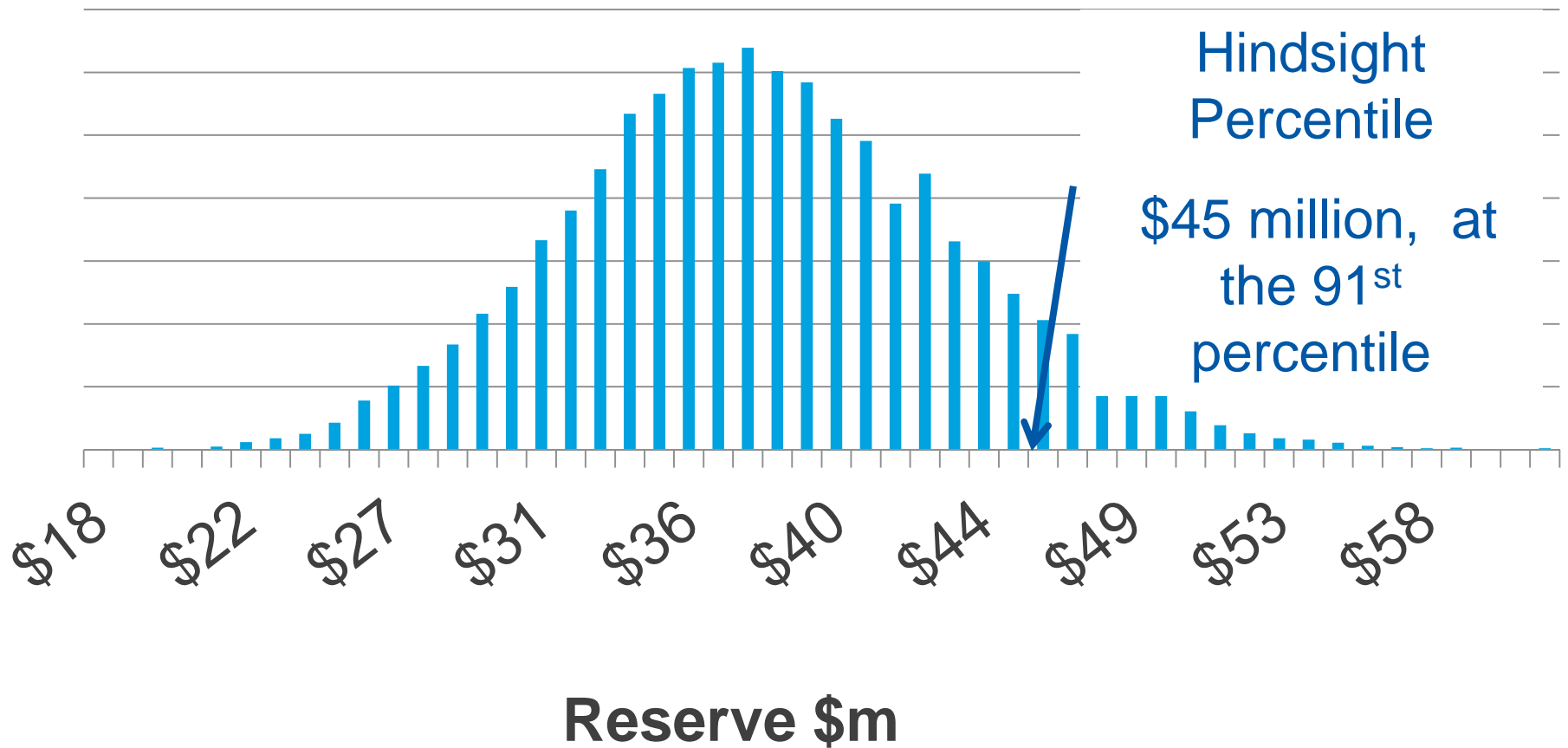
1. Are my bootstraps too tight?
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Company A

Distribution of Homeowners Unpaid as of 12/2000



Company A Distribution of Homeowners Unpaid as of 12/2000





51 Companies

Hindsight Percentile

Company A

91%

Company B

51%

Company C

6%

....

....

....

....

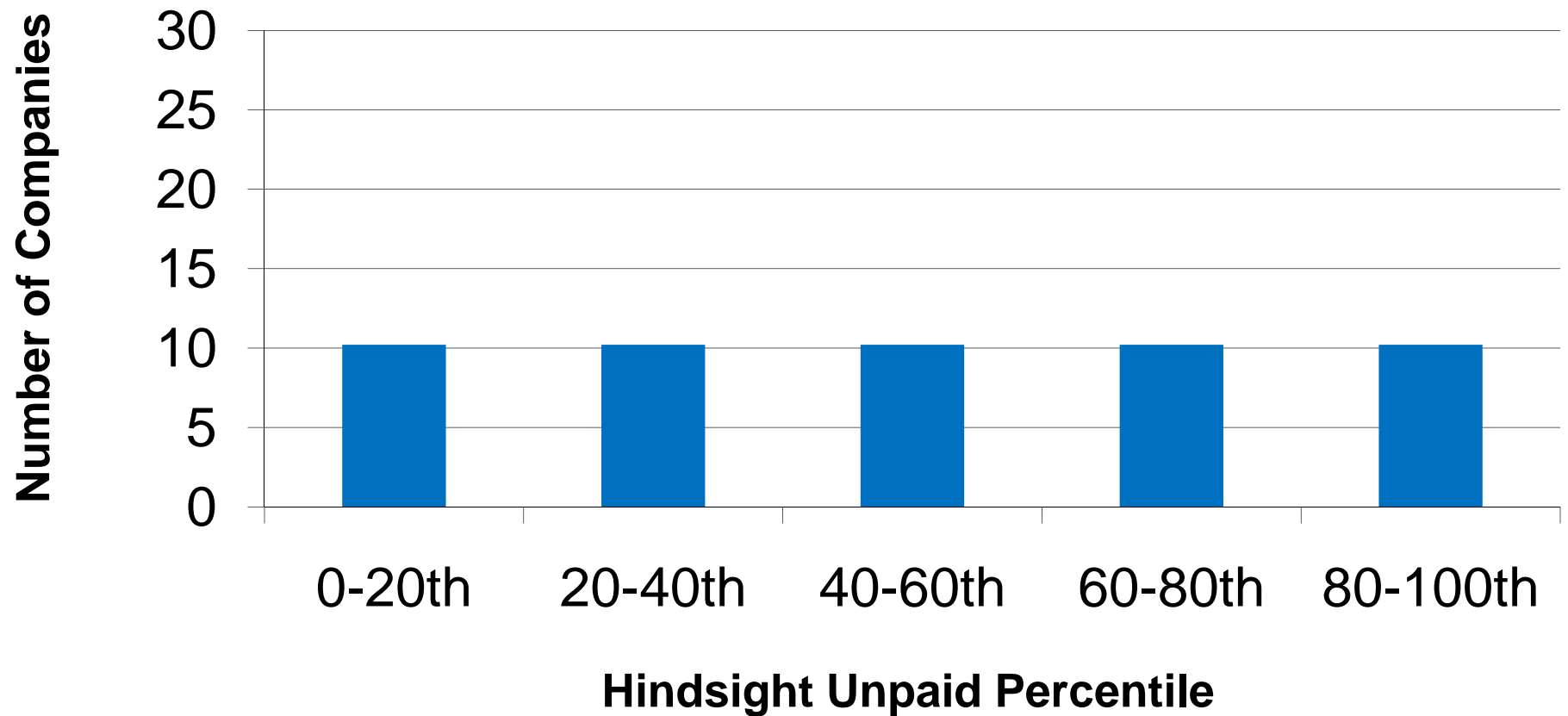
Company AA

85%

Company AB

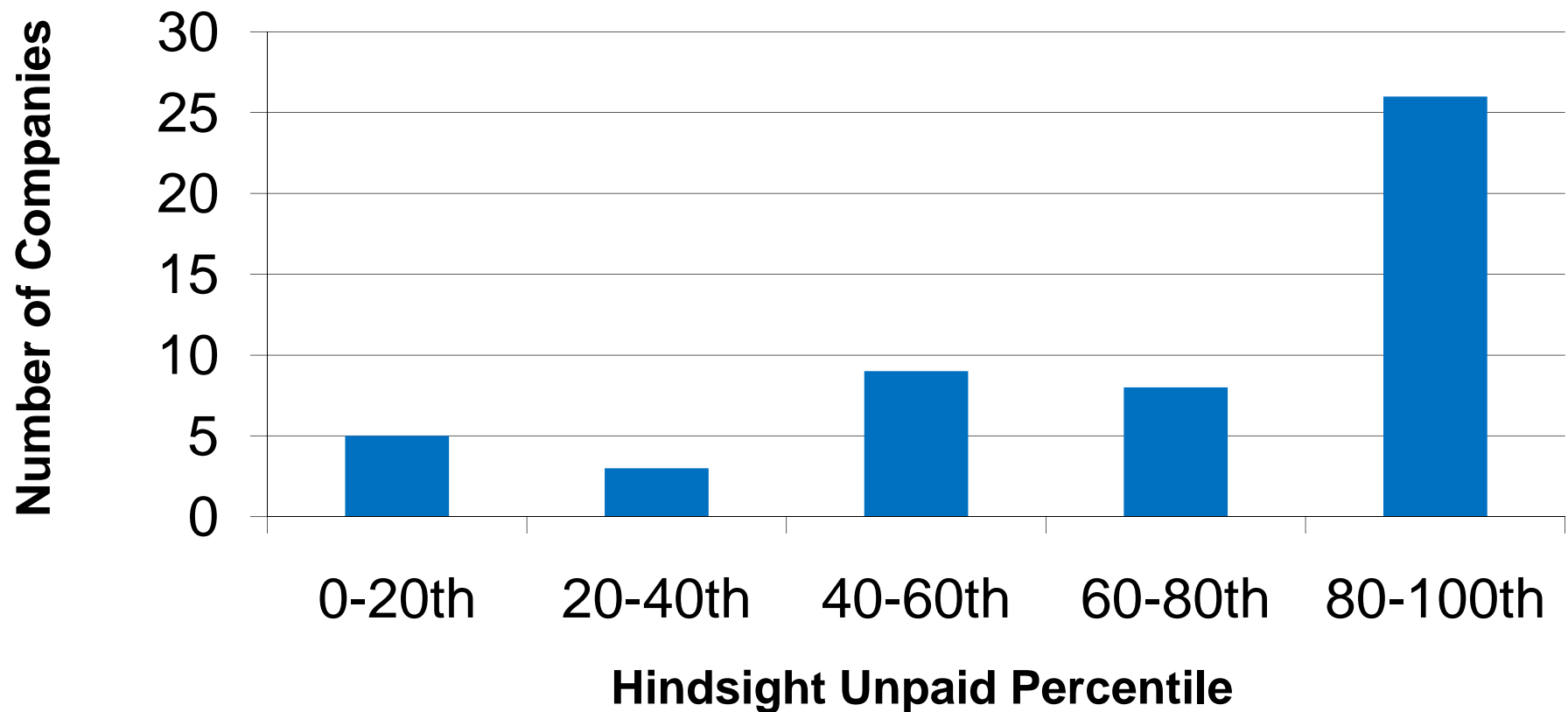
37%

■ Ideal Histogram of the Hindsight Percentile



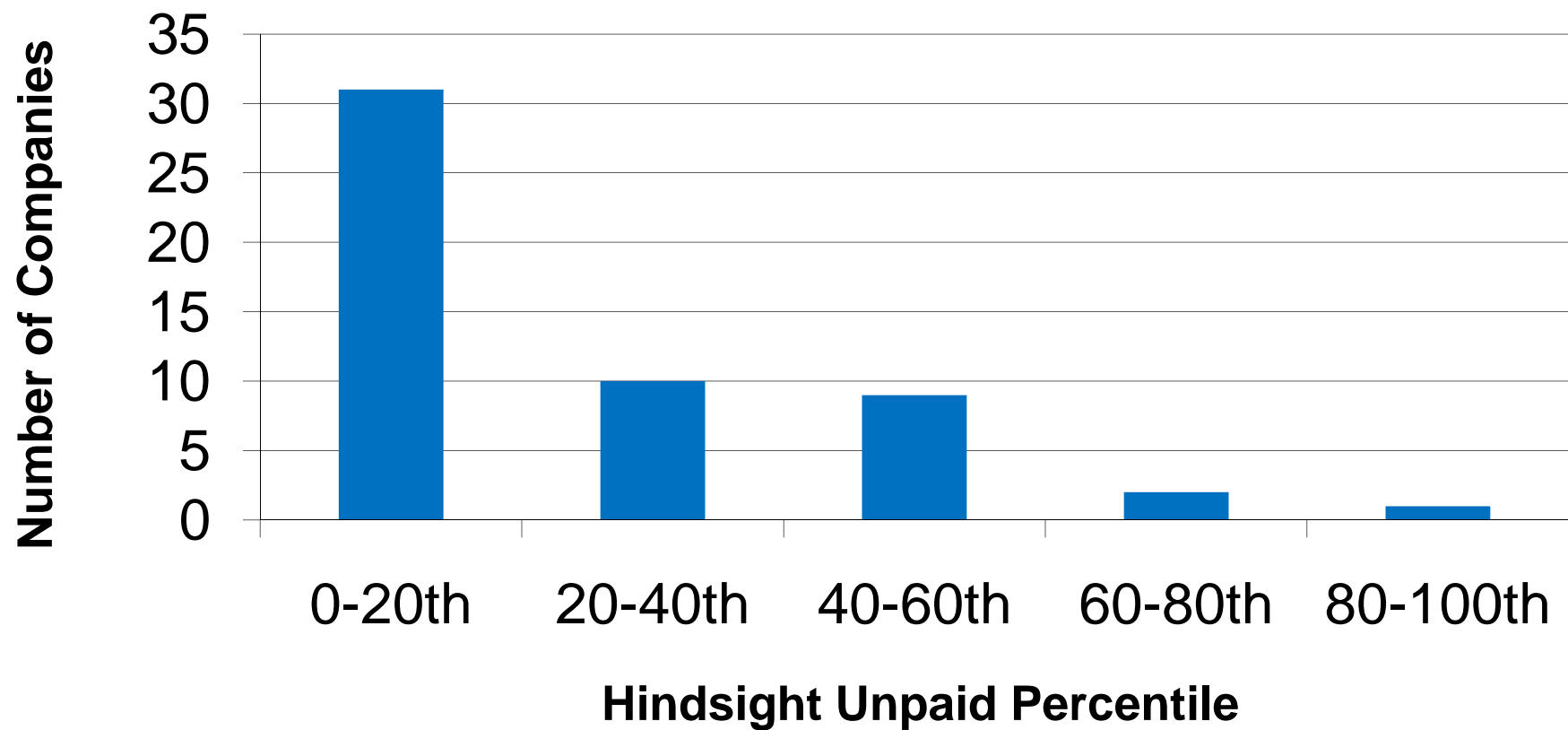
Homeowners as of 12/2000

Histogram of the Hindsight Percentile

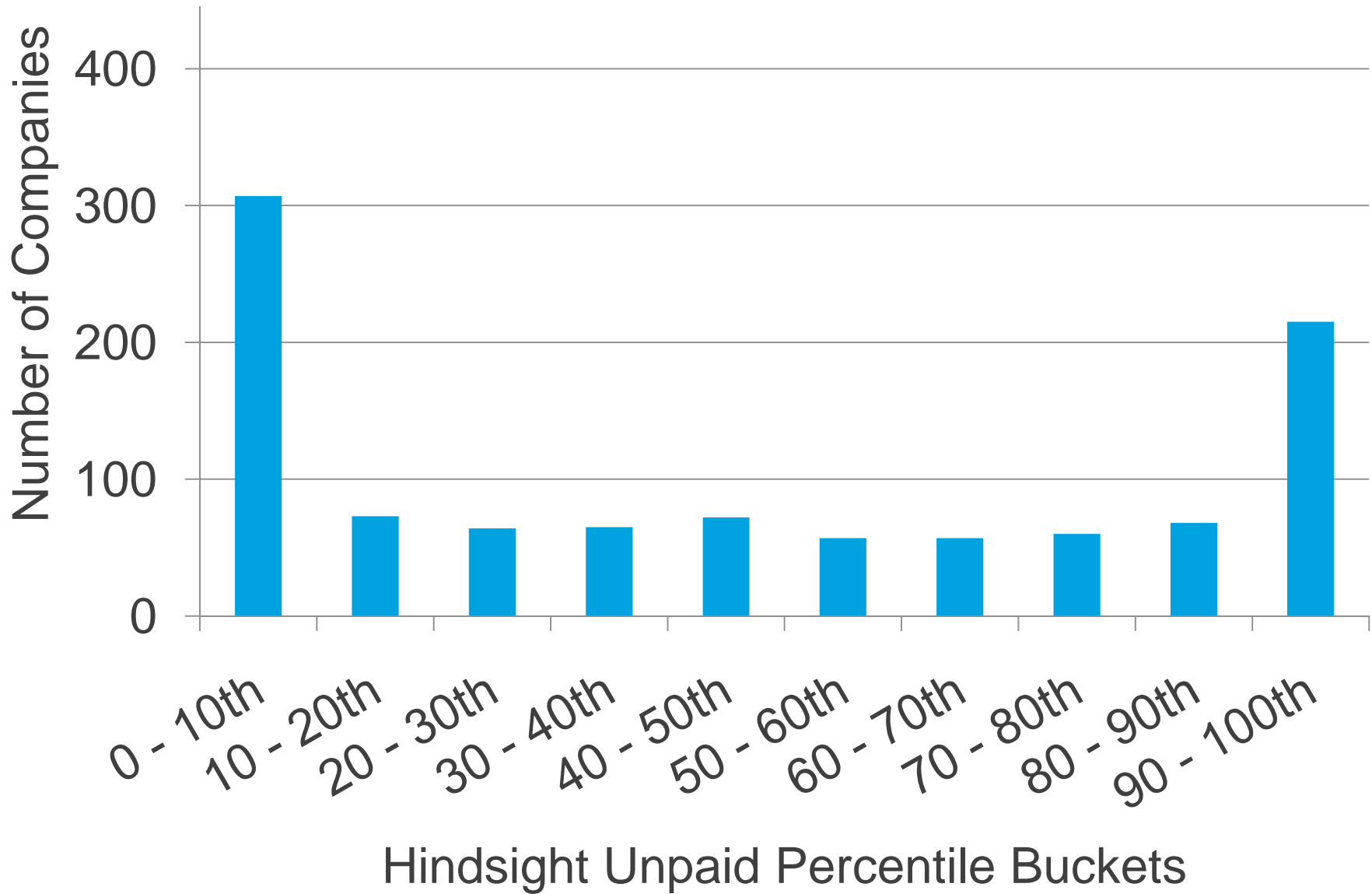


Homeowners as of 12/1996

Histogram of the Hindsight Percentile



Homeowners: Percentiles 1989-2002



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1. Are my bootstraps too tight?
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■ Why are our distributions too narrow?

Reserve risk split into two:

- systemic risk
- independent risk

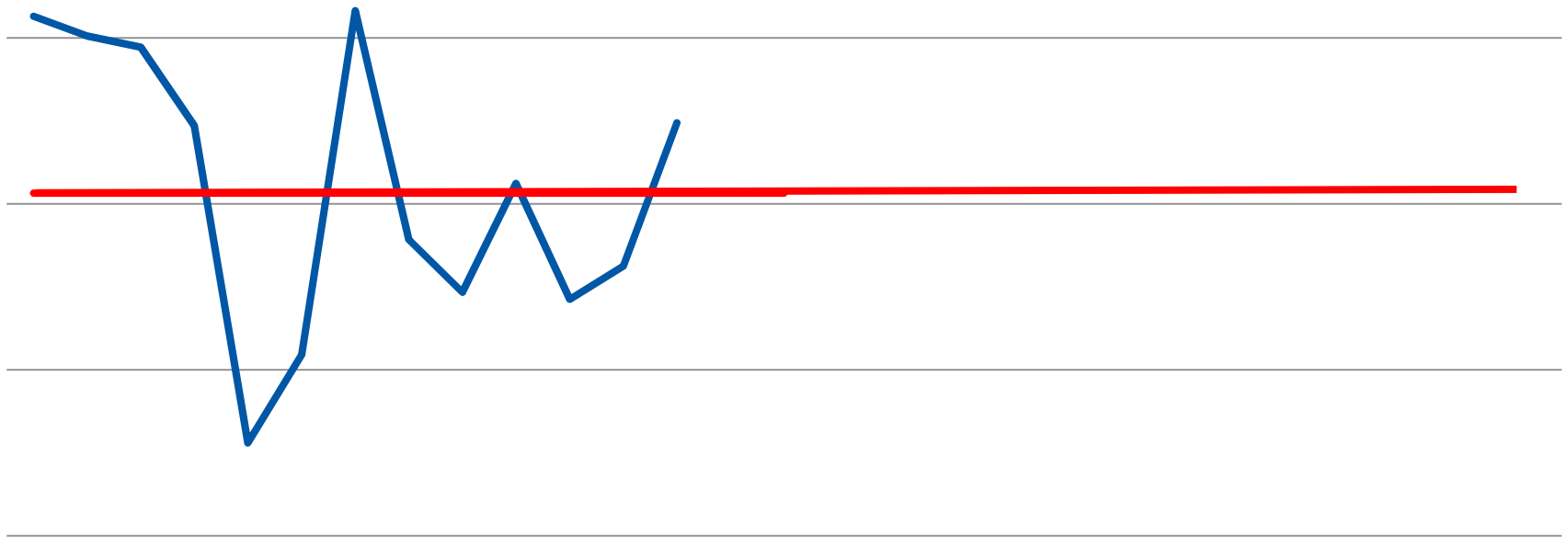
■ Why are our distributions too narrow?

Reserve risk split into two:

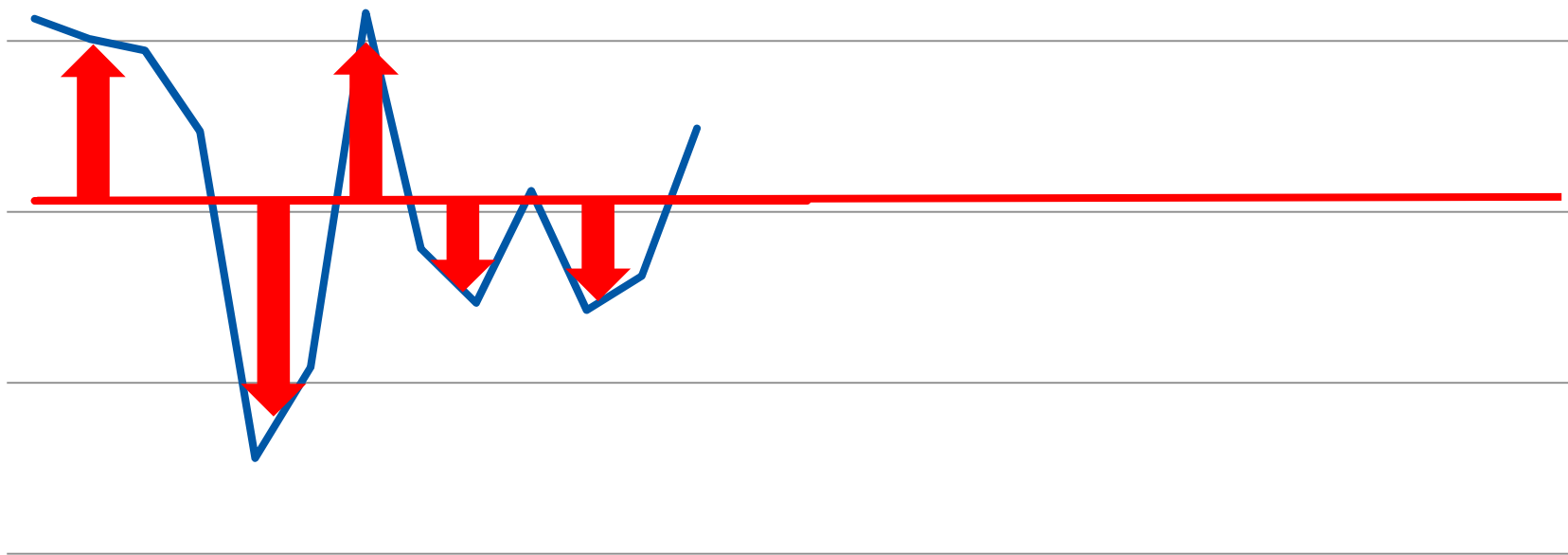
- systemic risk
- independent risk

Models only cover independent risk, not systemic risk

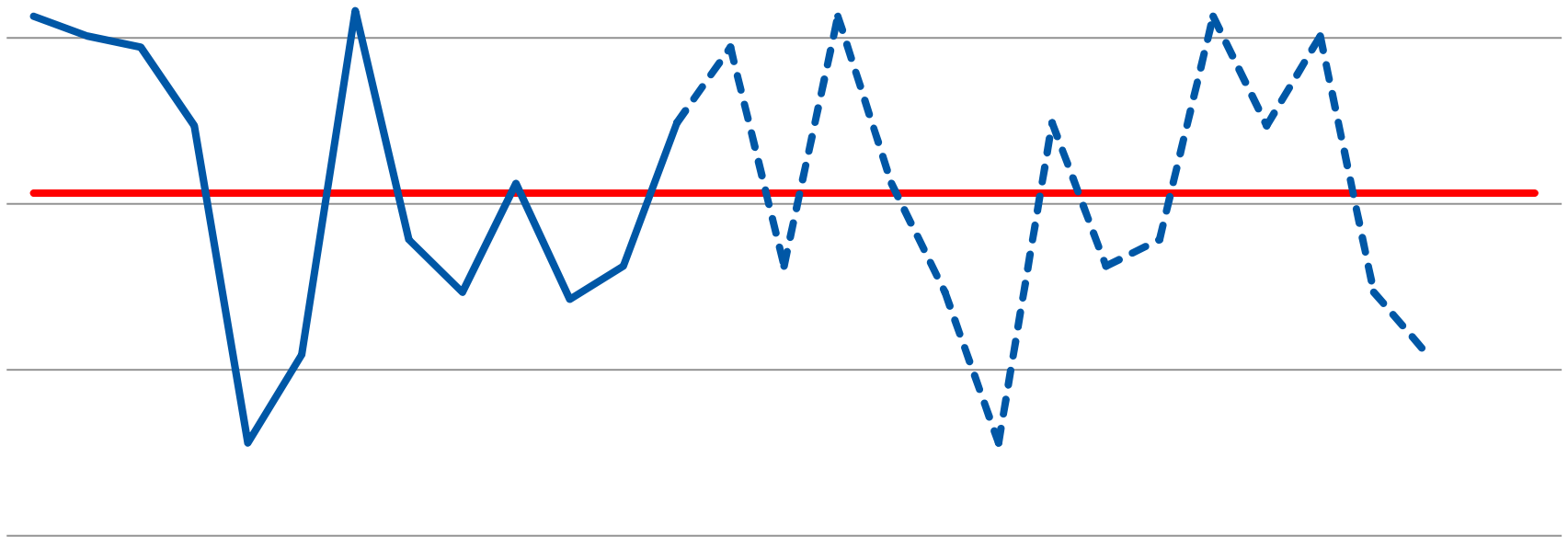
Measuring Independent Risk



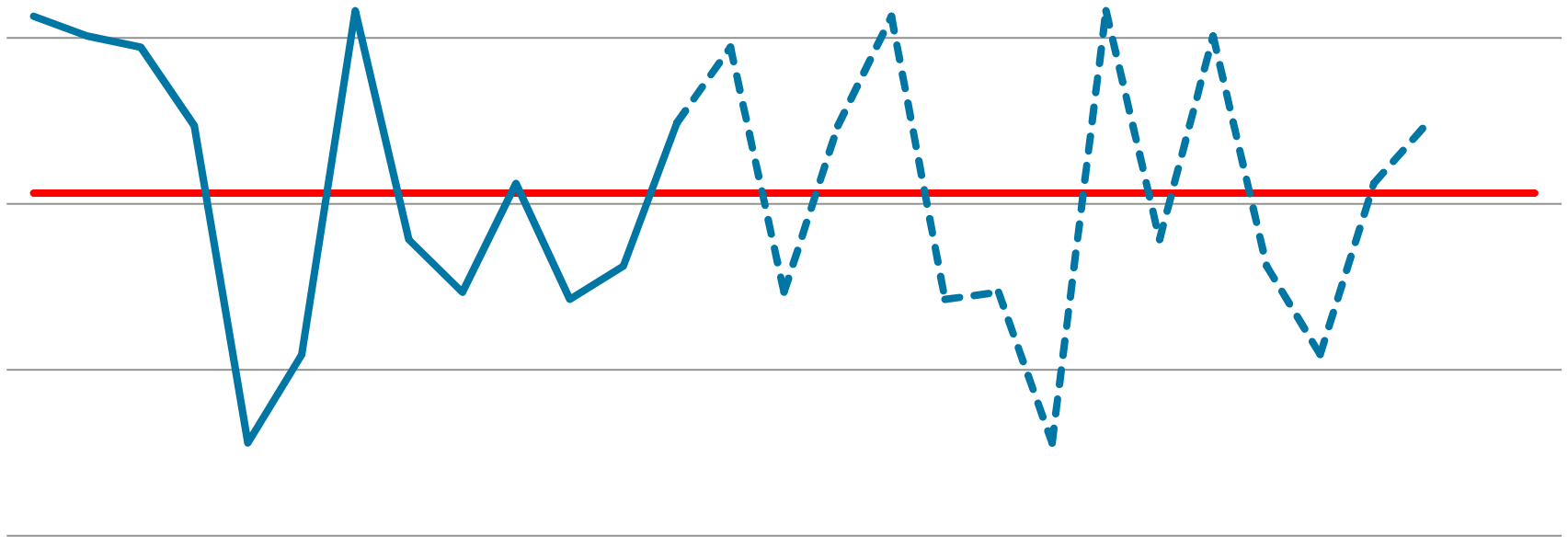
Measuring Independent Risk



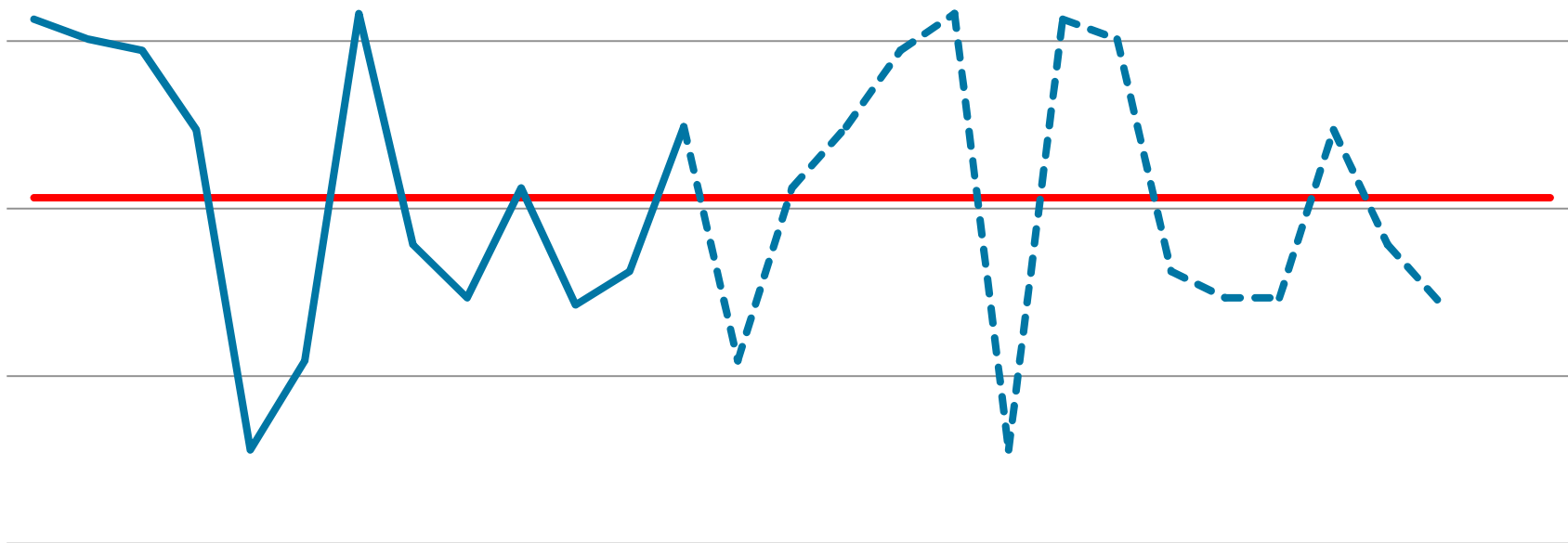
Measuring Independent Risk



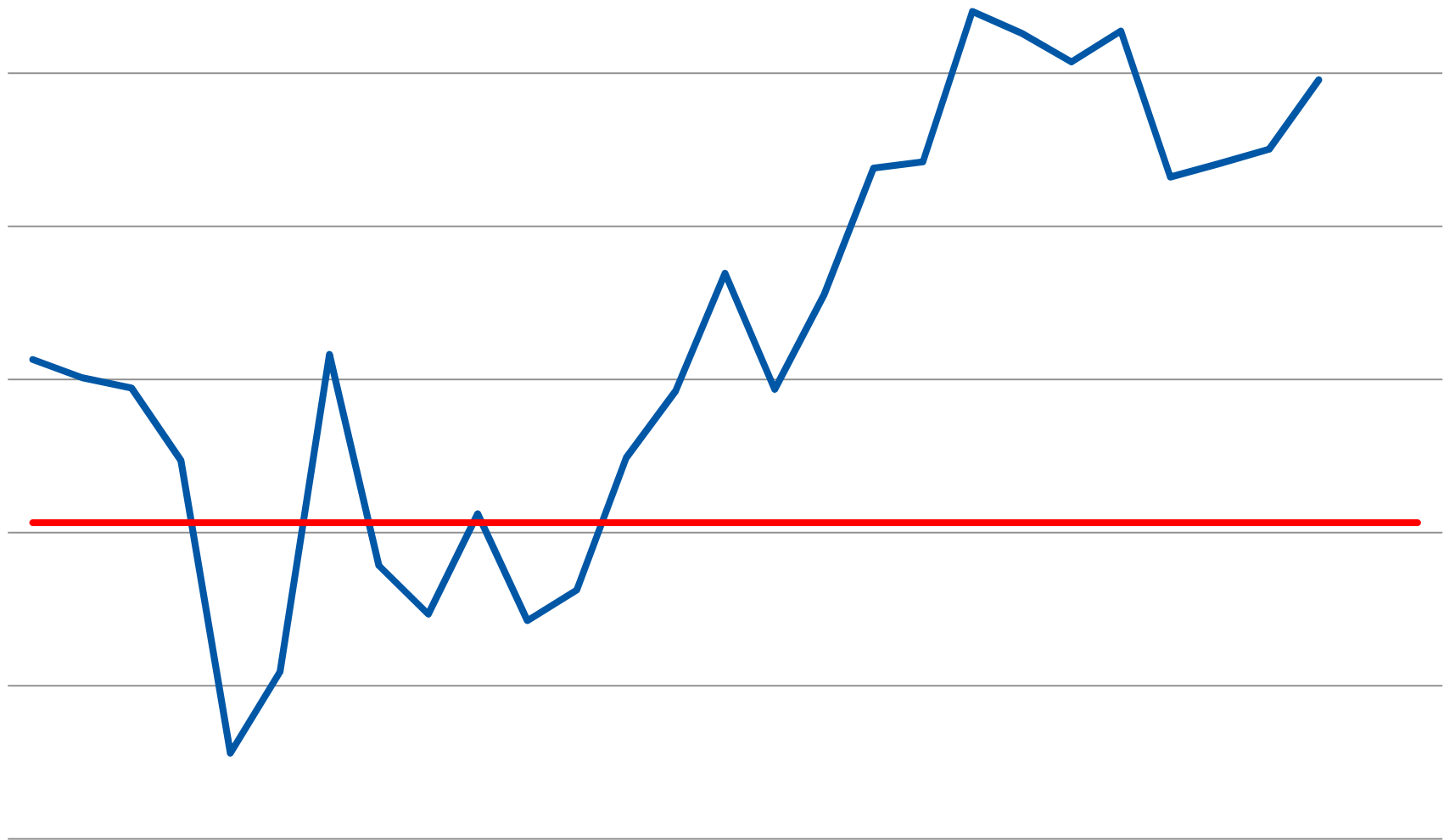
Measuring Independent Risk



Measuring Independent Risk



...but not Systemic Risk!



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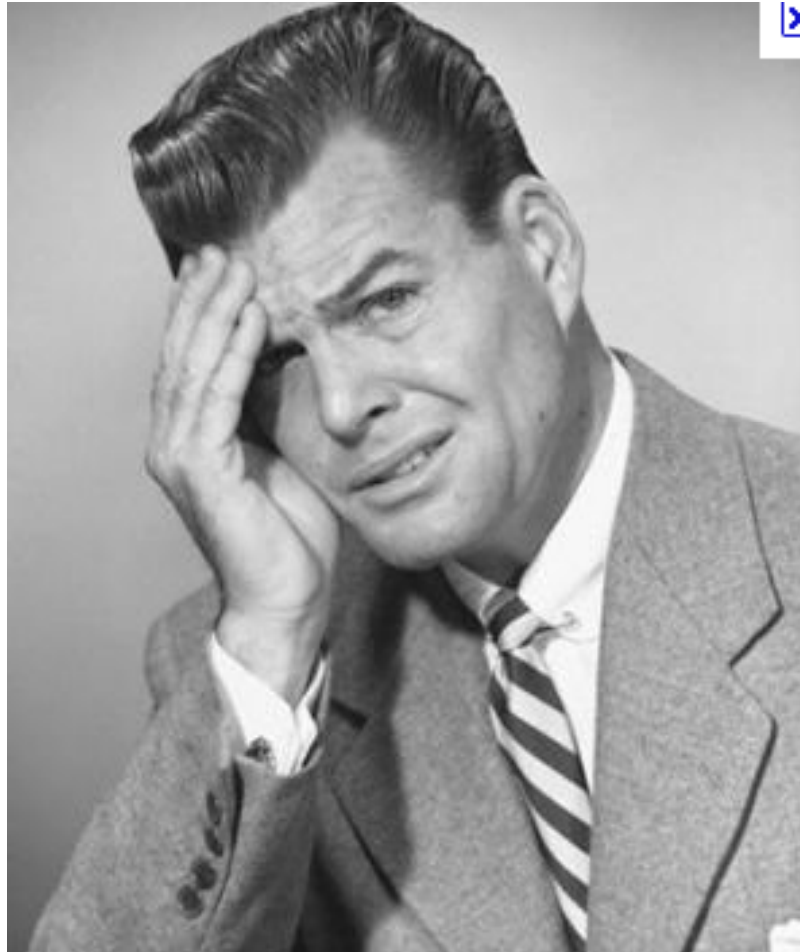
What can I do about it?

- Inflation risk
- Tort reform risk
- Legislative risk

Inflation Risk?



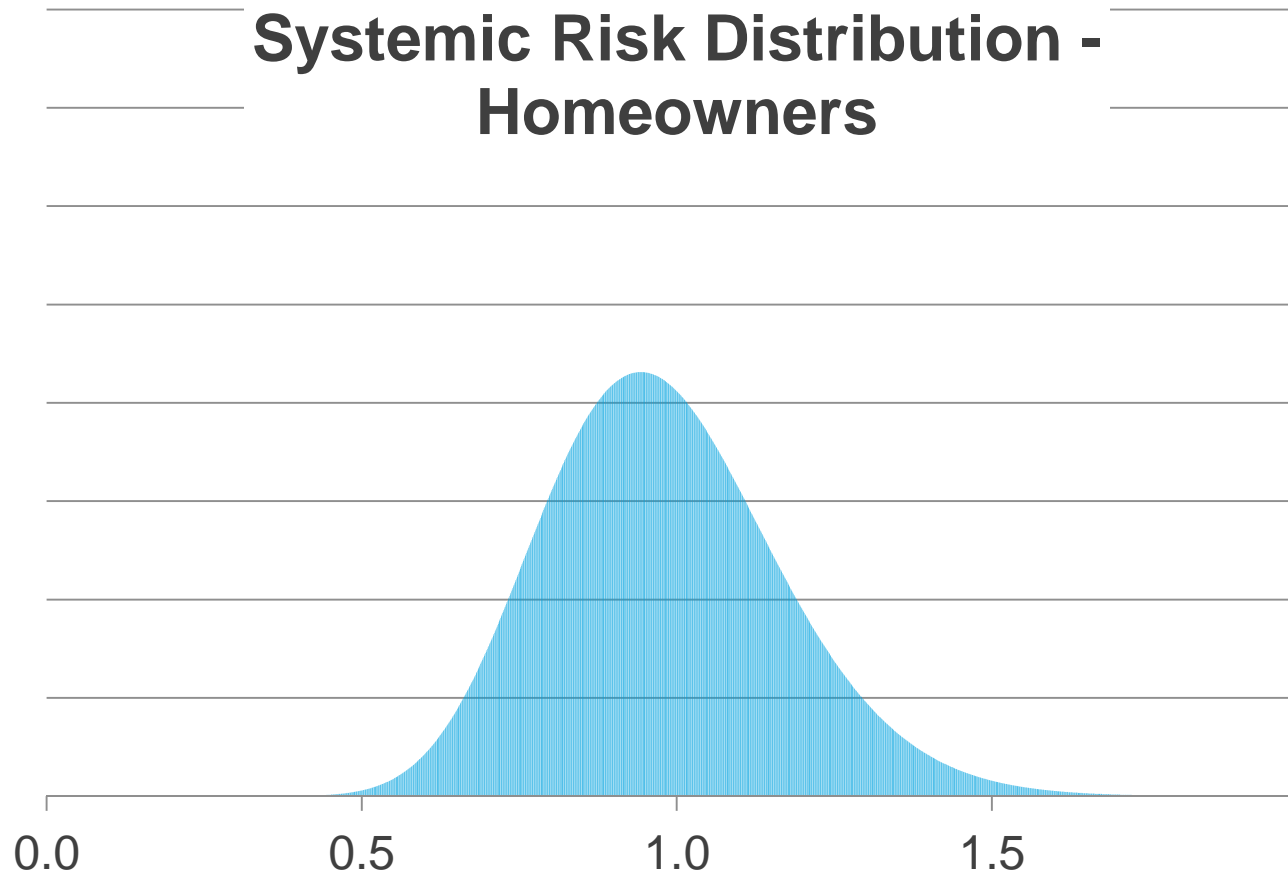
■ Tort Reform Risk?



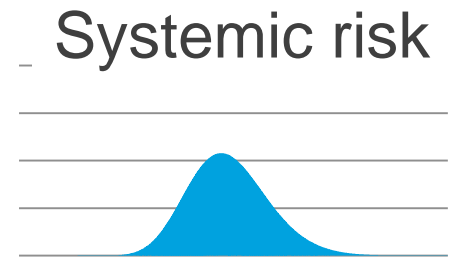
Legislative Risk?



What can we do about it?

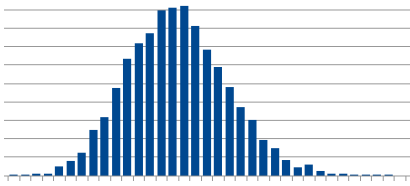


■ Reserve Risk – without Systemic Risk

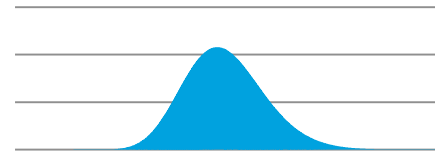


■ Reserve Risk – without Systemic Risk

Independent risk

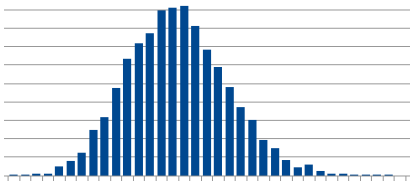


Systemic risk



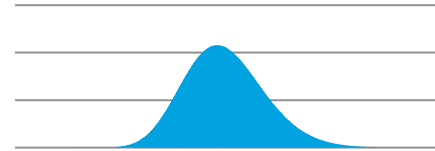
■ Reserve Risk – without Systemic Risk

Independent risk



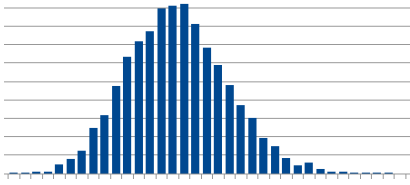
1.13

Systemic risk



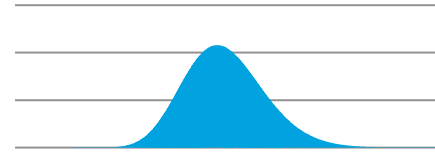
Reserve Risk – without Systemic Risk

Independent risk



1.13

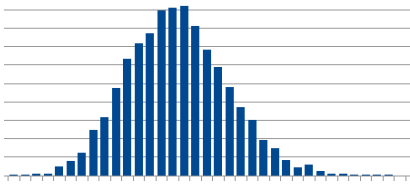
Systemic risk



\$32 million

Reserve Risk – without Systemic Risk

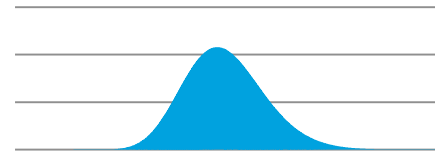
Independent risk



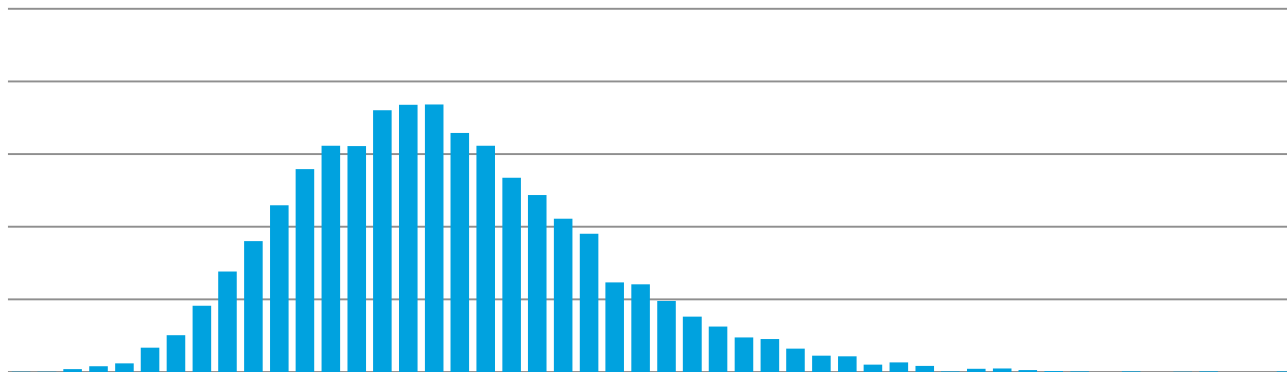
1.13

x

Systemic risk



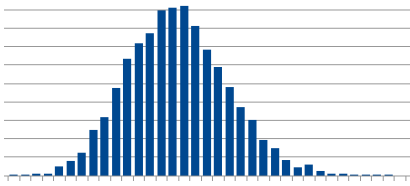
\$32 million



\$36 million

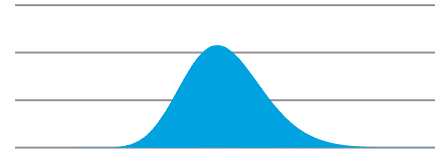
■ Reserve Risk – without Systemic Risk

Independent risk



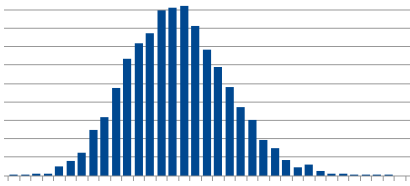
0.92

Systemic risk



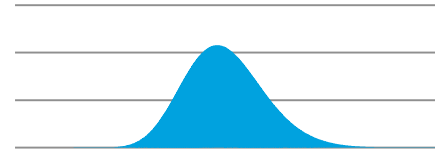
■ Reserve Risk – without Systemic Risk

Independent risk



0.92

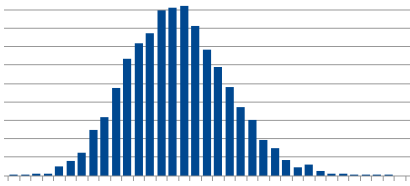
Systemic risk



\$44 million

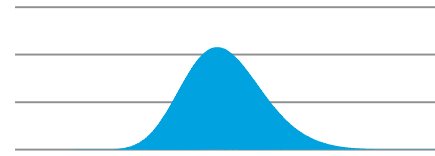
Reserve Risk – without Systemic Risk

Independent risk



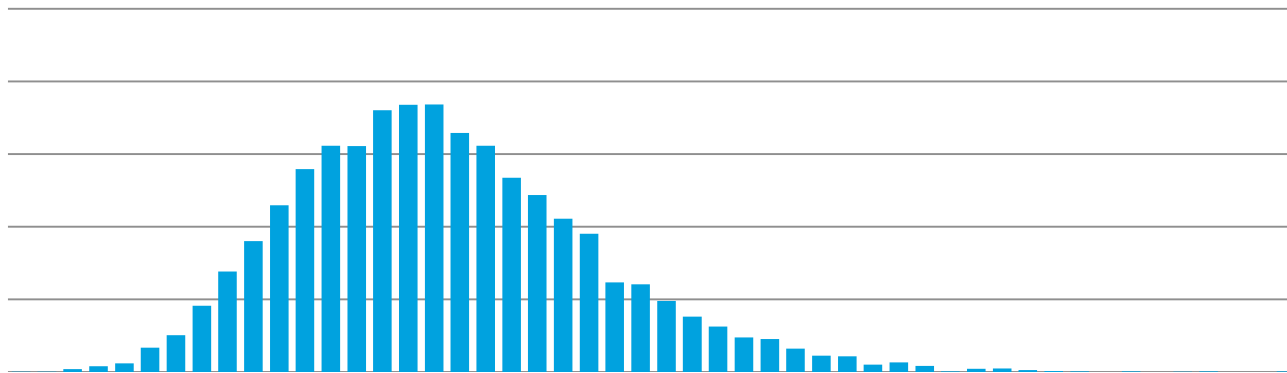
0.92

Systemic risk



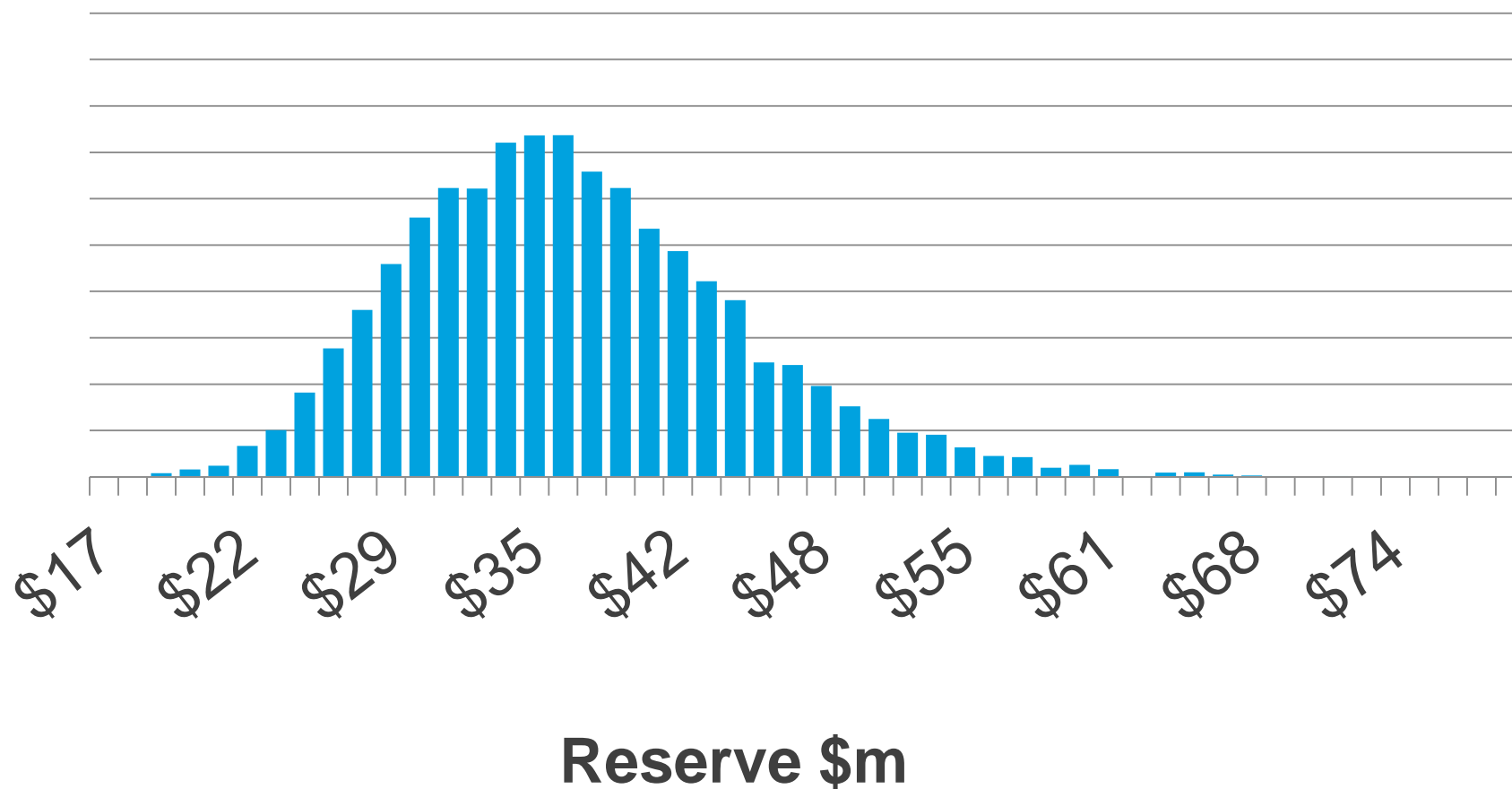
\$44 million

x

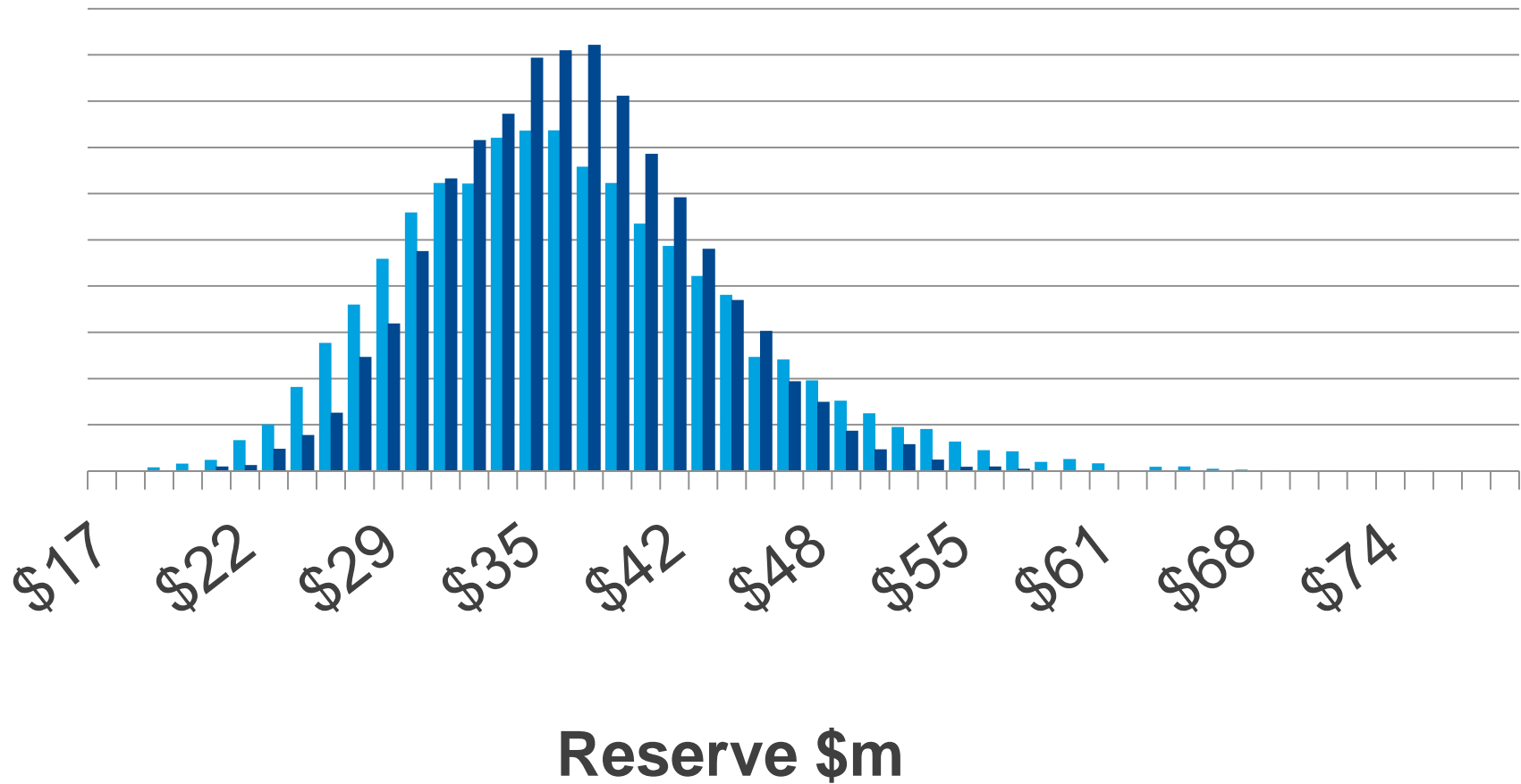


\$40 million

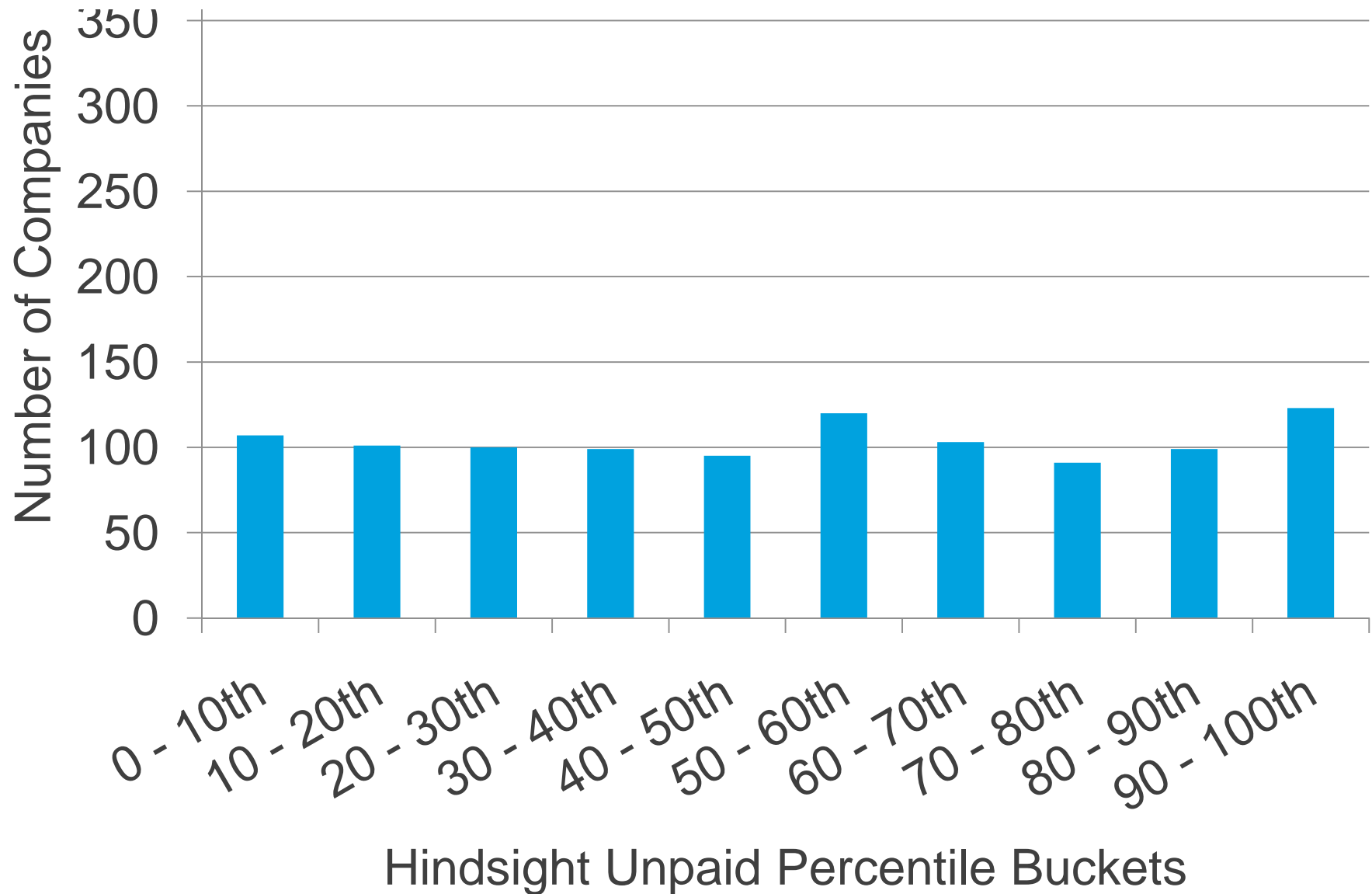
Reserve Risk – with Systemic Risk



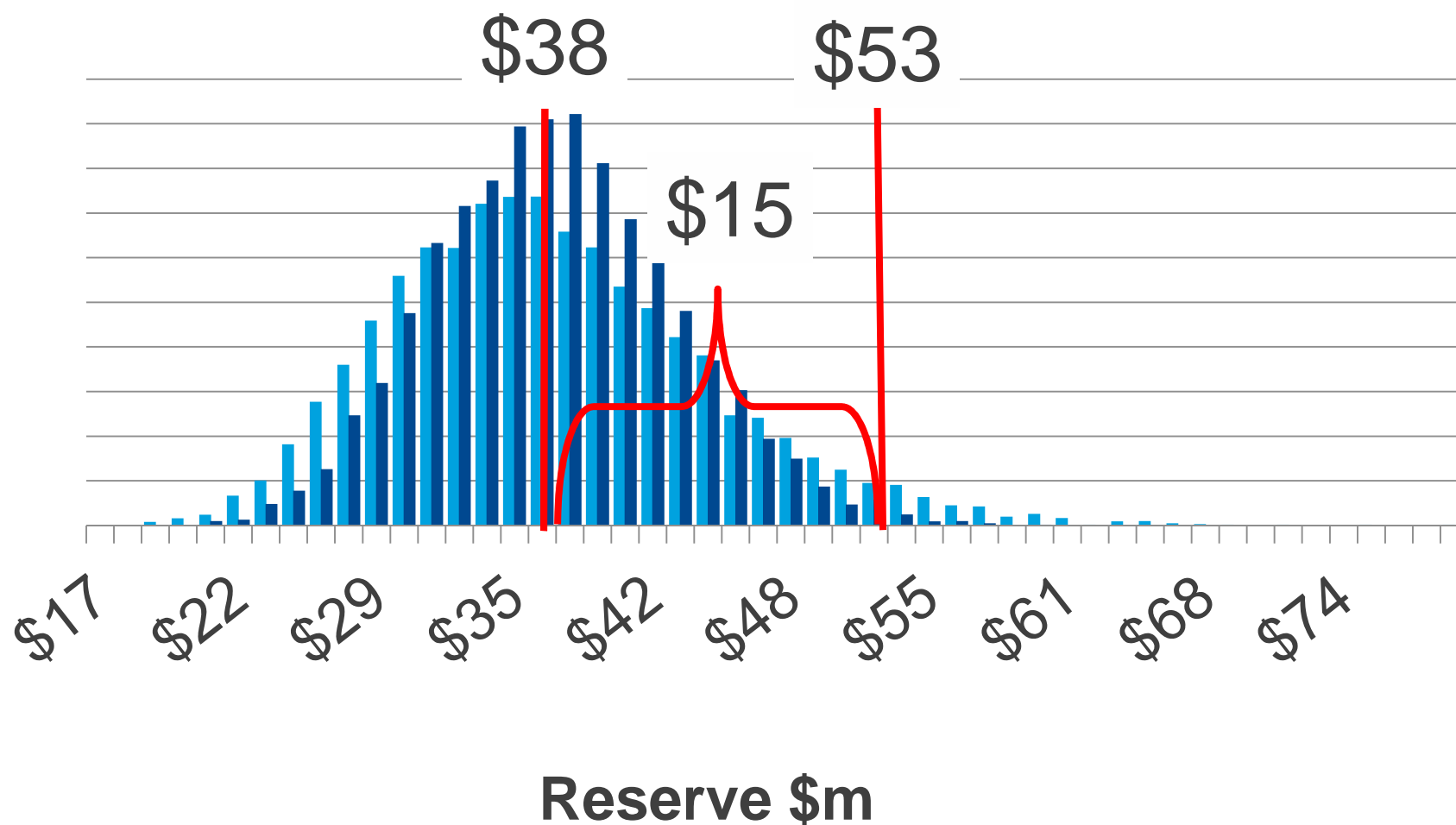
Reserve Risk – with and without Systemic Risk



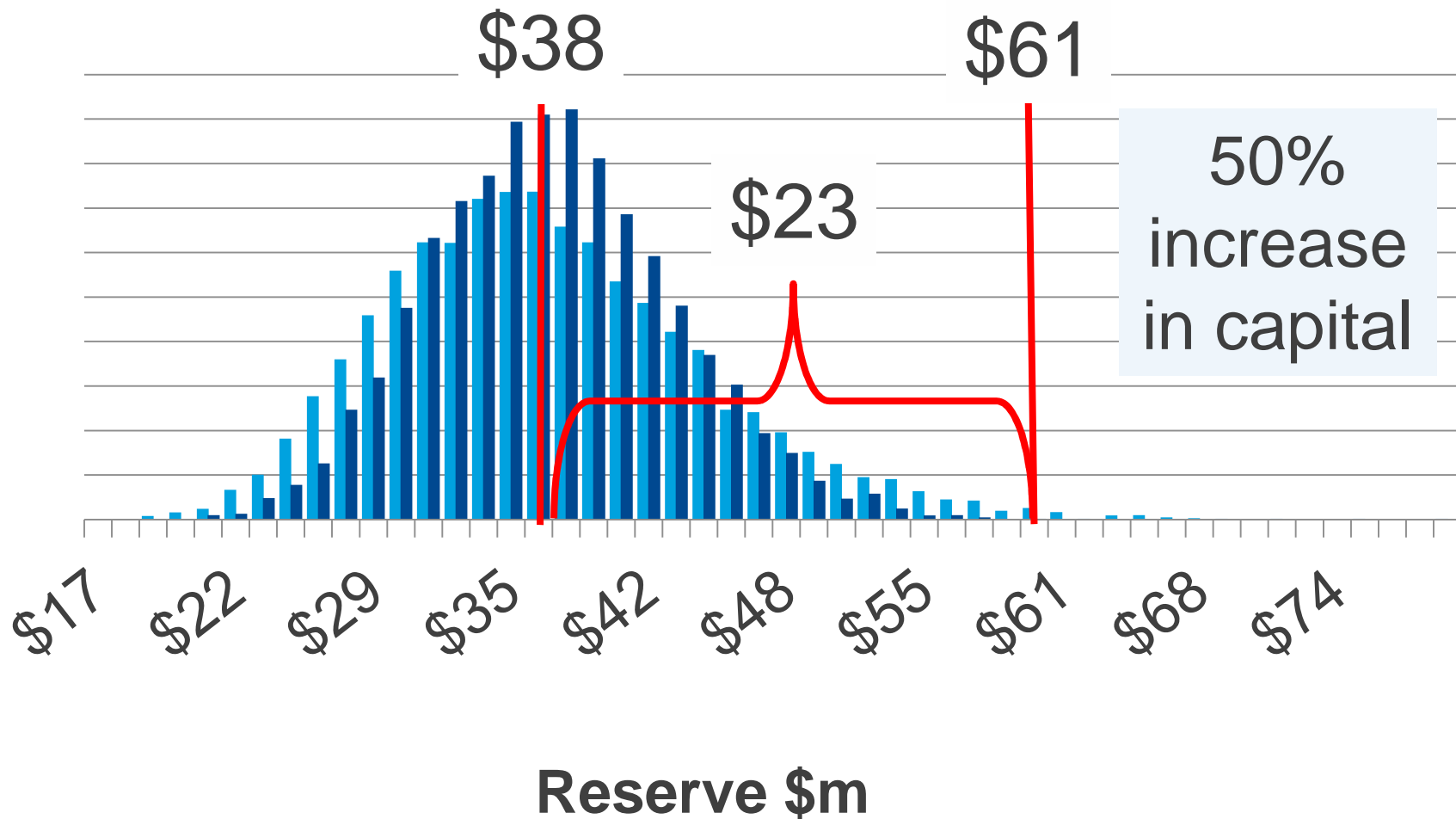
Homeowners percentiles after systemic risk



Indicated Capital without Systemic Risk



Indicated Capital with Systemic Risk



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