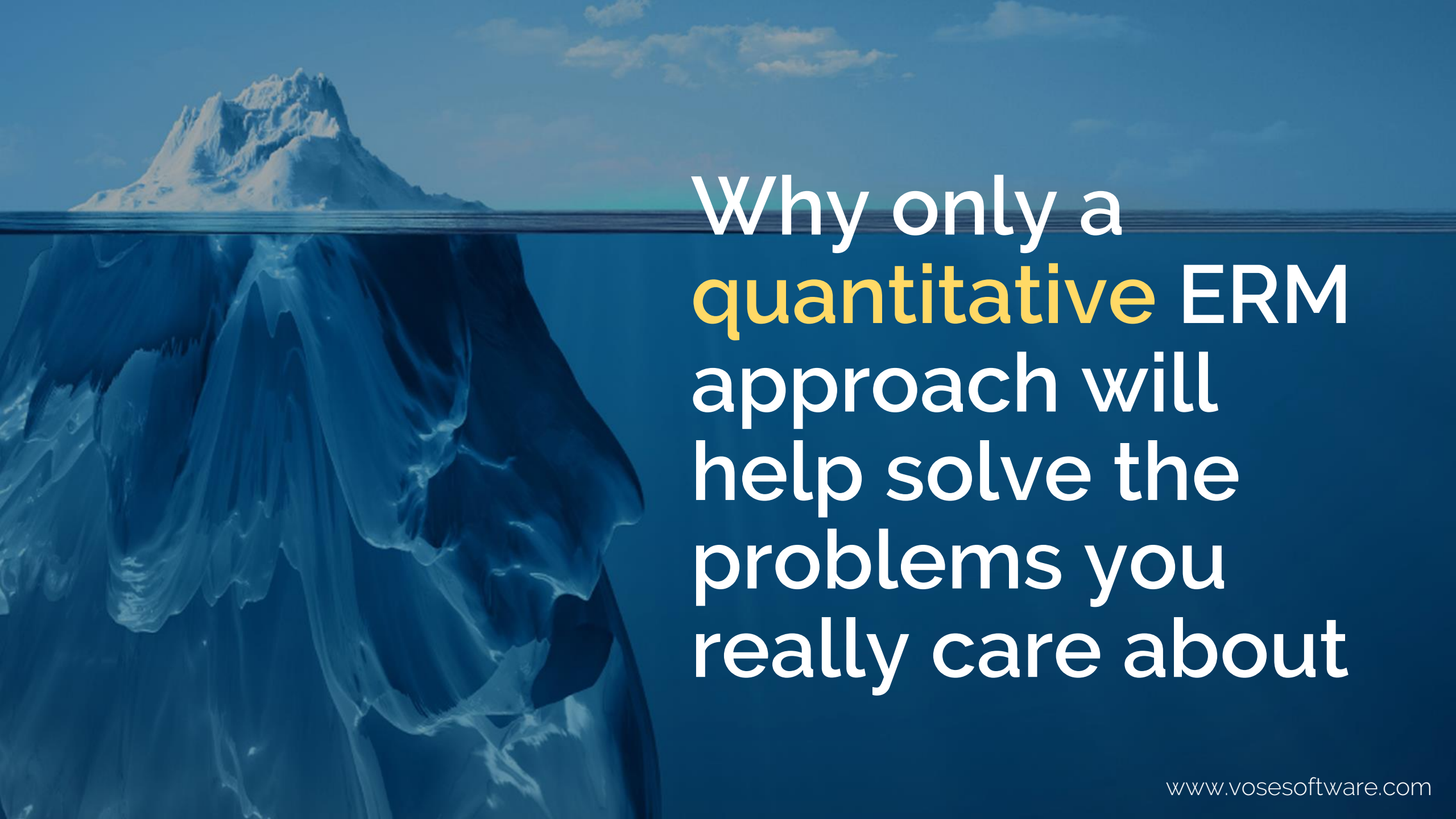
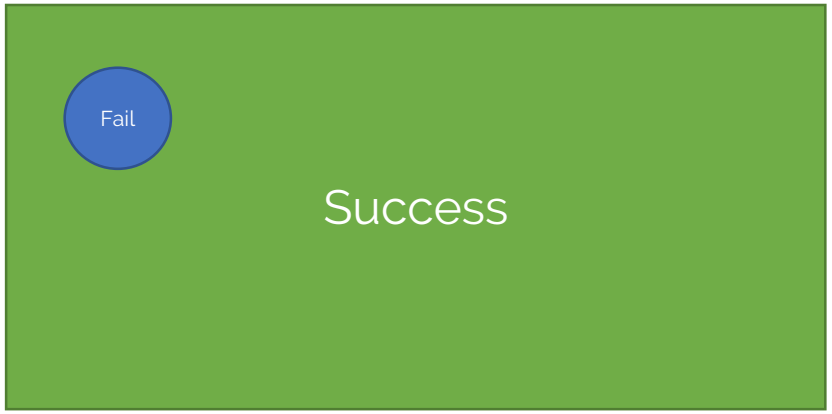

Why only a
quantitative ERM
approach will
help solve the
problems you
really care about

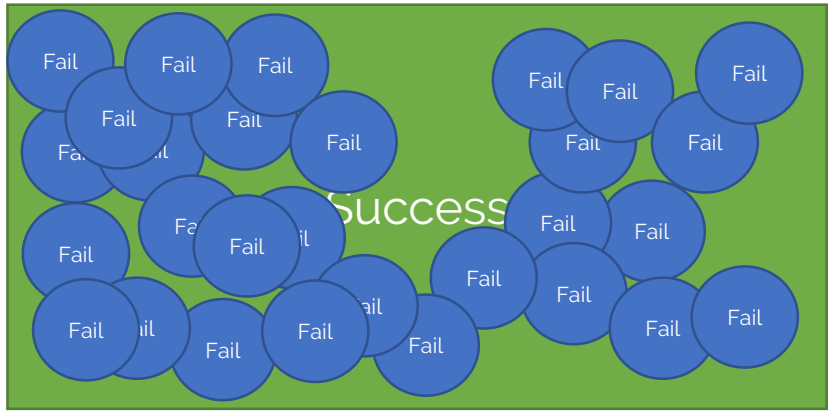
What is risk aggregation?

It means evaluating the effect of a set of risks, not just individually

1 risk – very small problem



Many risks – big problem



The probability of success is the probability nothing happens to cause the plan to fail

Risk scores

Probability score P: 1, …, 5

Impact score I: 1, …, 5

Severity Score S: = P * I

That works OK only if both scales are linear

Then S is proportional to mean risk

Multiplying indices with arithmetic chance and impact scales			Chance				
			Very Low (1)	Low (2)	Medium (3)	High (4)	Very High (5)
			0.2	+0.2 → 0.4	0.6	0.8	1
Impact	Very High (5)	$10M	5	10	15	20	25
	High (4)	$8M	4	8	12	16	20
	Medium (3)	$6M	3	6	9	12	15
	Low (2)	$4M +$2M	2	4	6	8	10
	Very Low (1)	$2M	1	2	3	4	5

There is no ideal scaling

1 in 5 same as 1 in 1000?

Exponential scale more practical, but P*I now nonsense

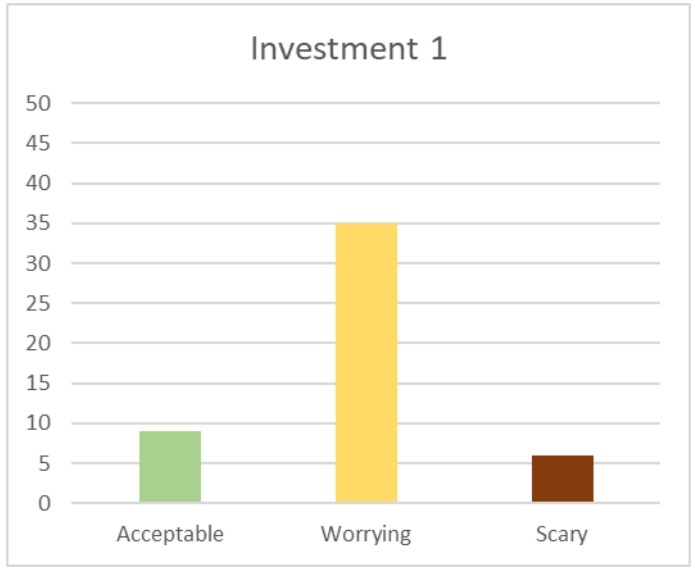
And what to do when a risk impact spans 2+ categories?

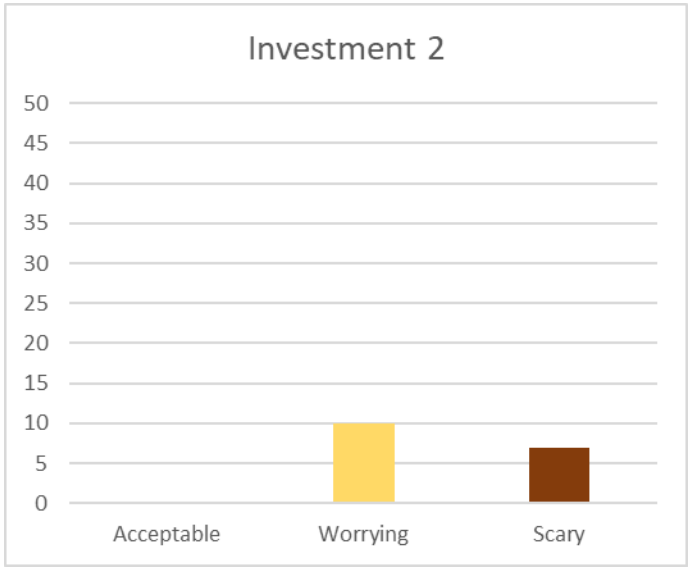
A very common risk heat map setup			Chance				
			Very Low (1)	Low (2)	Medium (3)	High (4)	Very High (5)
			0 - 0.2	0.2 - 0.4	0.4 - 0.6	0.6 - 0.8	0.8 - 1
Impact	Very High (5)	>$10M	5	10	15	20	25
	High (4)	$1M - $10M	4	8	12	16	20
	Medium (3)	$100k - $1M	3	6	9	12	15
	Low (2)	$10k - $100k	2	4	6	8	10
	Very Low (1)	<$10k	1	2	3	4	5

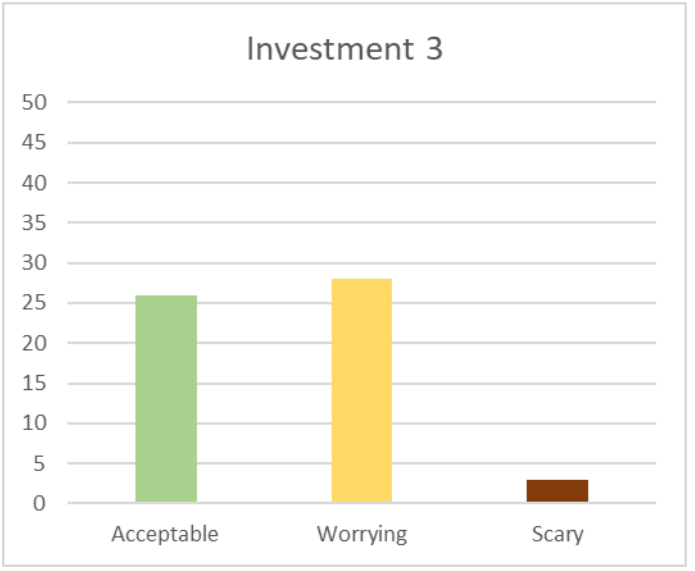
Where do repeatable risks go?

Risk scores and aggregation

No maths for colours so usual way is to count the colours



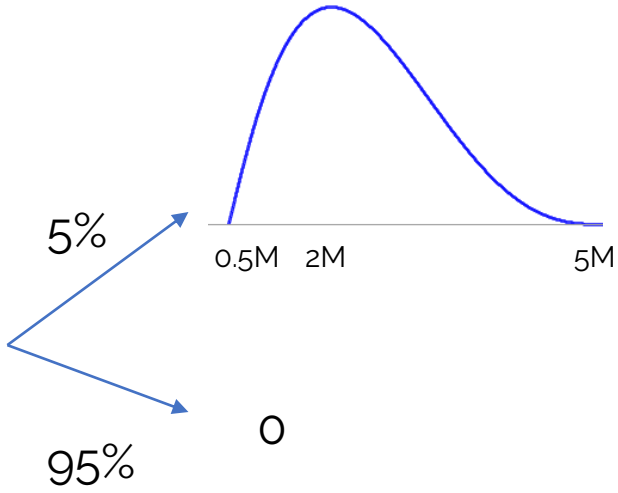




How can we really compare?

Why not just use the data you already have?

			Chance				
			Very Low (1)	Low (2)	Medium (3)	High (4)	Very High (5)
			0 - 0.2	0.2 - 0.4	0.4 - 0.6	0.6 - 0.8	0.8 - 1
Impact	Very High (5)	>$10M					
	High (4)	$1M - $10M					
	Medium (3)	$100k - $1M					
	Low (2)	$10k - $100k					
	Very Low (1)	<$10k					



It will ALWAYS be more accurate
You DON'T have to know the numbers precisely

You can run a Monte Carlo simulation in Excel

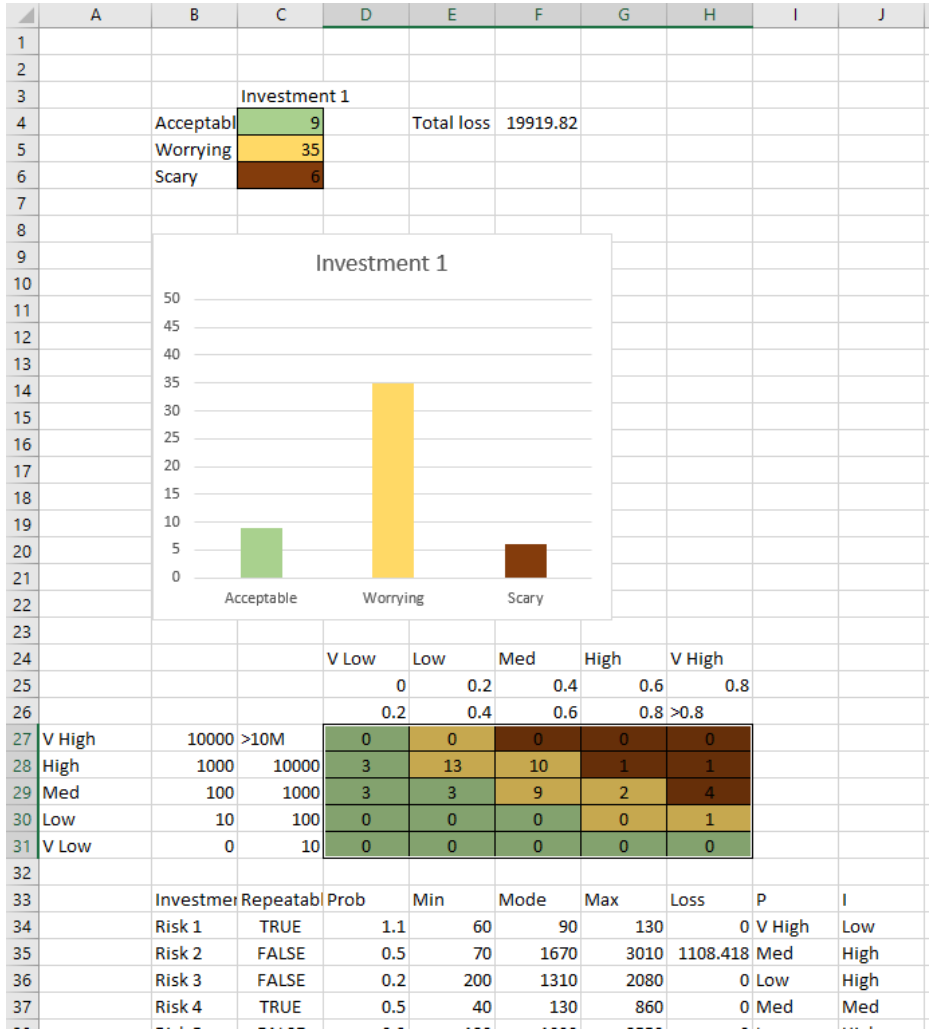
ModelRisk Basic is free: www.vosesoftware.com

Or use macros and make your own (don't)

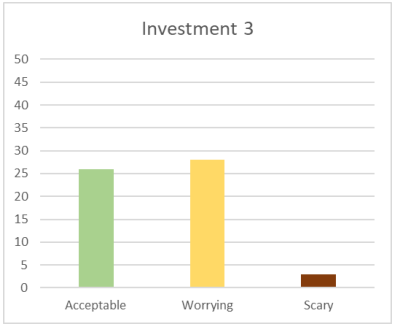
ModelRisk Complete is not very expensive, and will save a lot of time

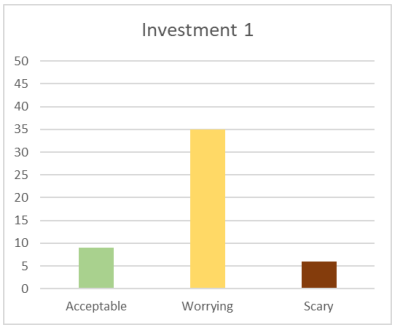
The basics take about 1 day to learn

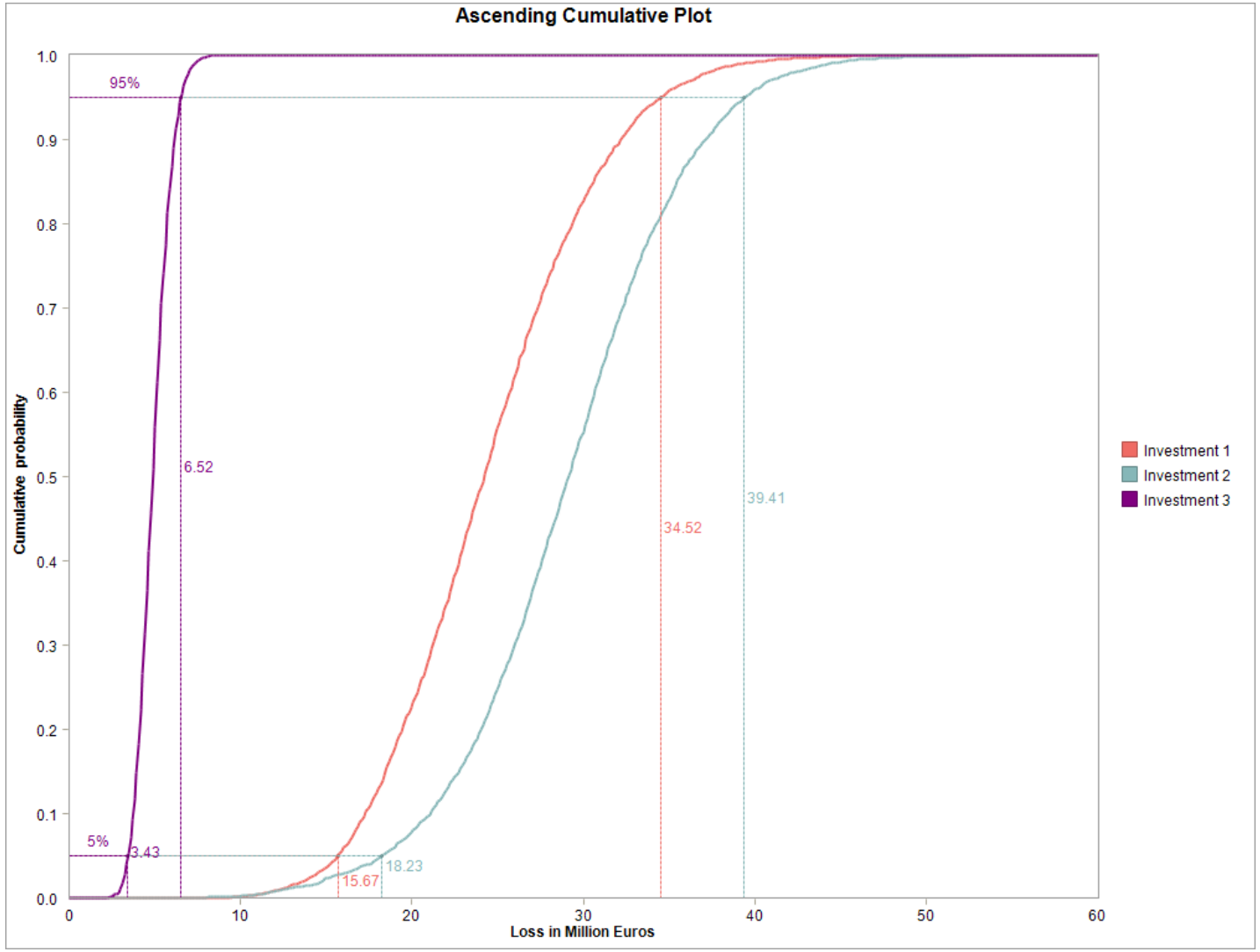
You can always keep your heat maps – just drop the scoring!

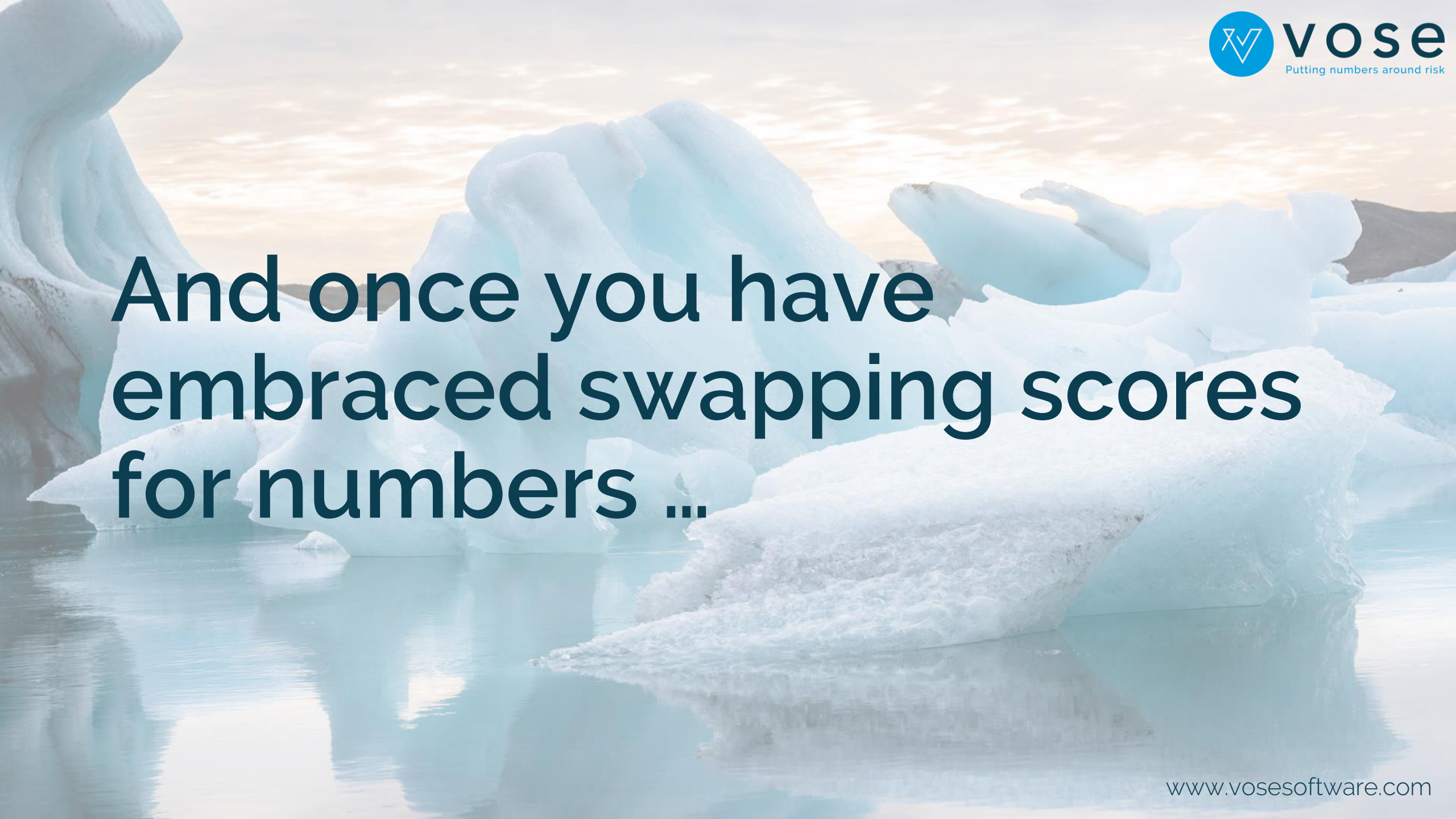


A simple Monte Carlo simulation and now we can compare





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And once you have embraced swapping scores for numbers …
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Thanks for watching!

Interested in Pelican? Email info@vosesoftware.com to arrange a chat