

Systemic Risk and Resilience

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True or False?

Systemic Risk is risk that
cannot be eliminated
through diversification
fully or partially

True or False

Risk of financial losses in one company, industry sector or country leading to losses in another

True or False

Risk of failure of a system due to problems spreading between inter-dependent entities, within the system following a trigger event

Why is systemic risk hard to define



New types of risks (Emerging Risks)
Continuously evolving Risk drivers

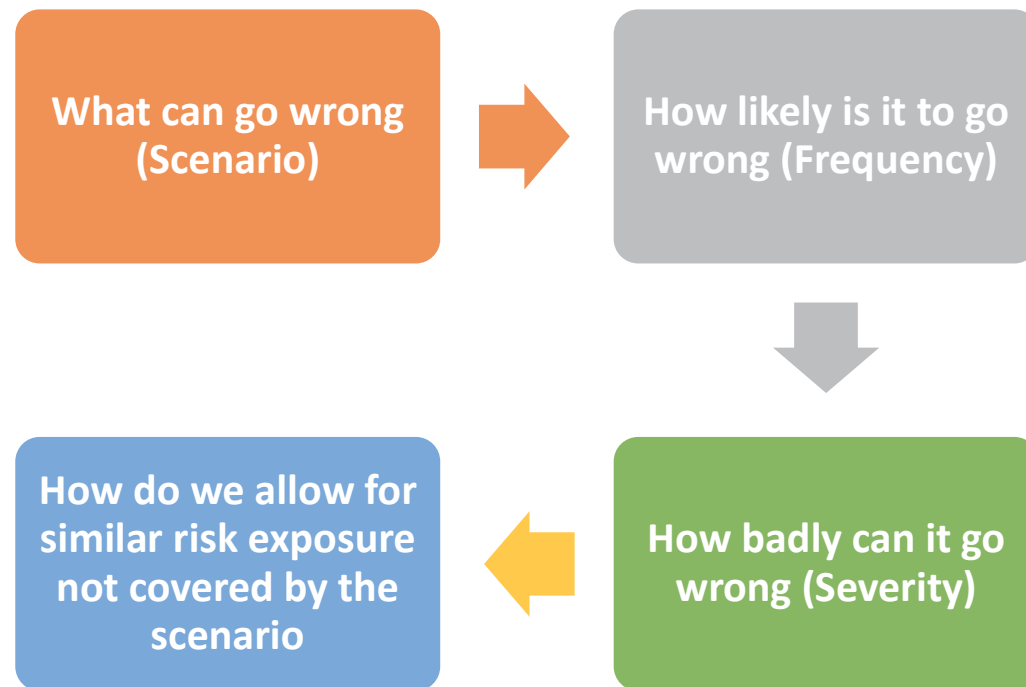


Increased inter-connectedness between elements of the financial system
Exposure to emerging risks
Common technological infrastructure

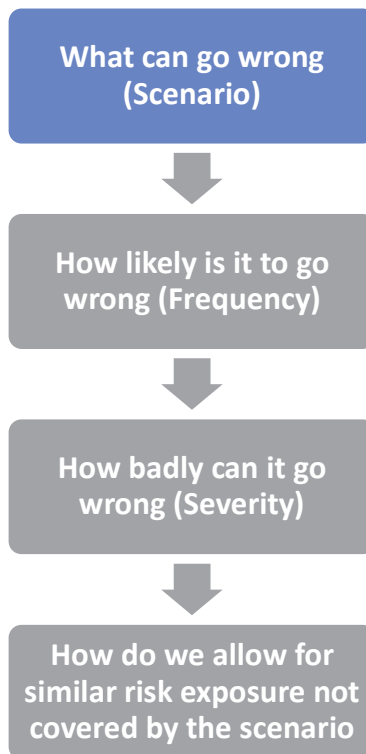


Lack of Empirical data on risk behaviours and interactions (particularly in extreme conditions)

Operational Risk lens

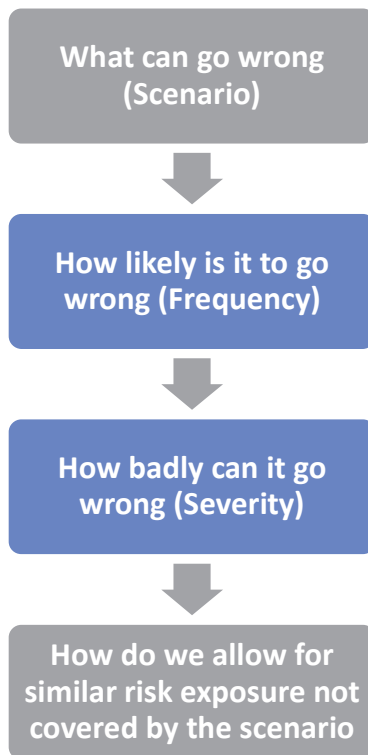


Operational Risk lens



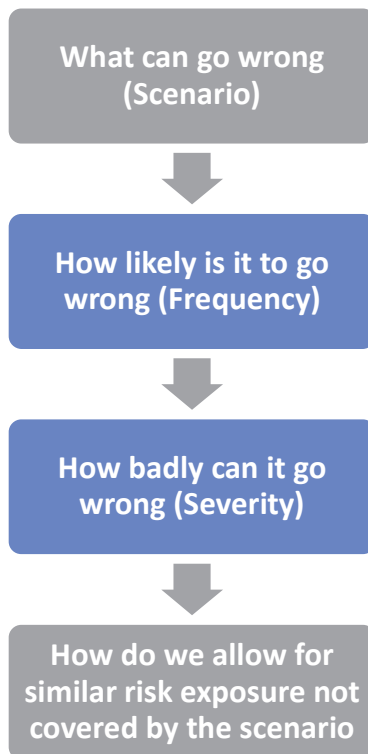
- Plausible and specific scenarios
- Low frequency- high severity
- Triggers for crystallisation are understood
- Current controls not effective mitigation

Operational Risk lens



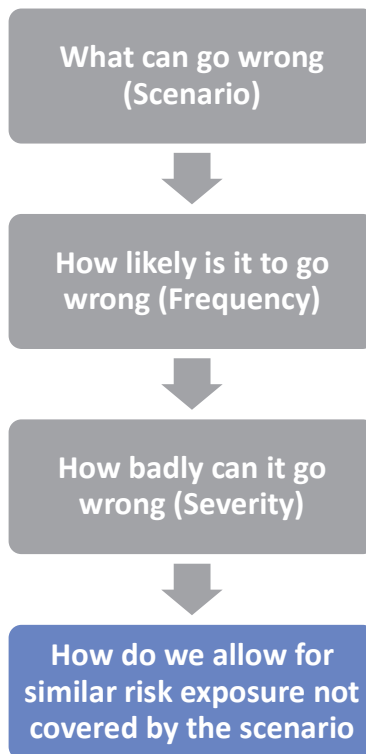
- How often would we expect an event of this nature to happen
- Assuming it has happened, How severe can it be
- Severity can be cross-referenced to frequency, for example:
 - Typical loss (expected every 1 in 2 years – represents 50th percentile)
 - Significant loss (expected every 1 in 10 years – represents 90th percentile)
- Loss figures based on broken down consideration of expected losses and allow for mitigations in place
- Example frequency distributions: Poisson, binomial
- Example severity distributions: Log-normal

Operational Risk lens



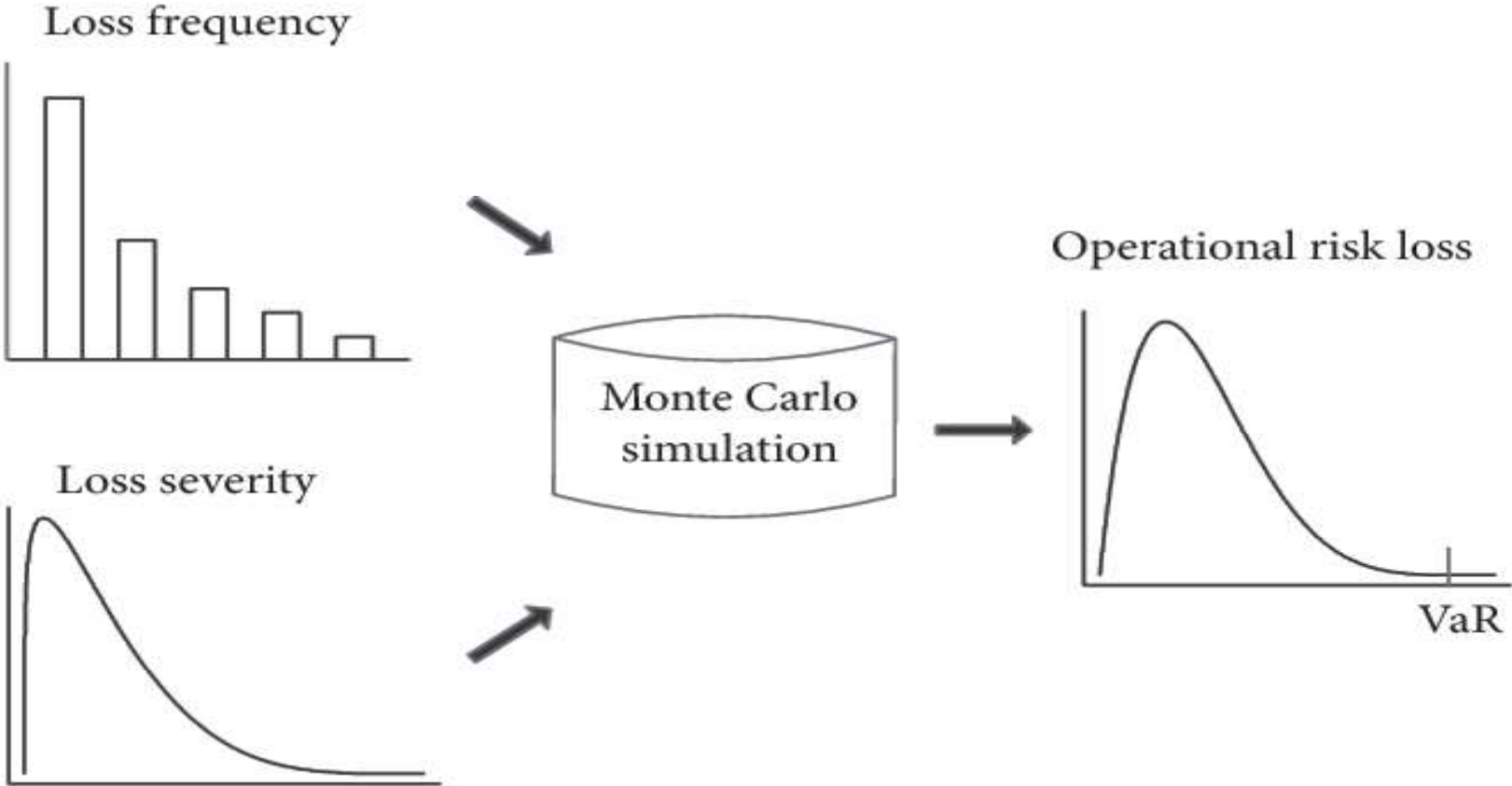
- Subject Matter expert sense check
- Frequency cross-referenced to severity, for example:
 - We would expect an event costing between \$x million (typical) & \$y million (significant) to occur every z years, or
 - There is a z% likelihood that this event will cost between \$x million & \$y million over the next 1 year

Operational Risk lens



Adjust frequency (i.e. make more likely) to allow for risk exposure that is not considered in the scenario

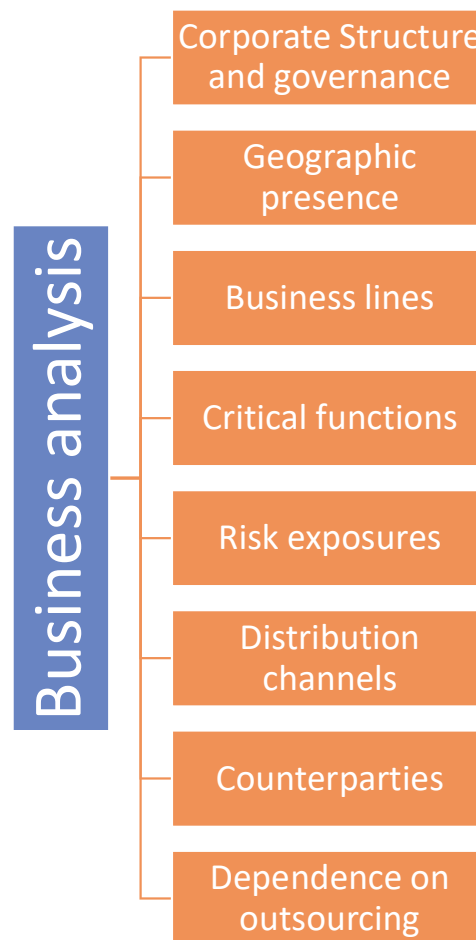
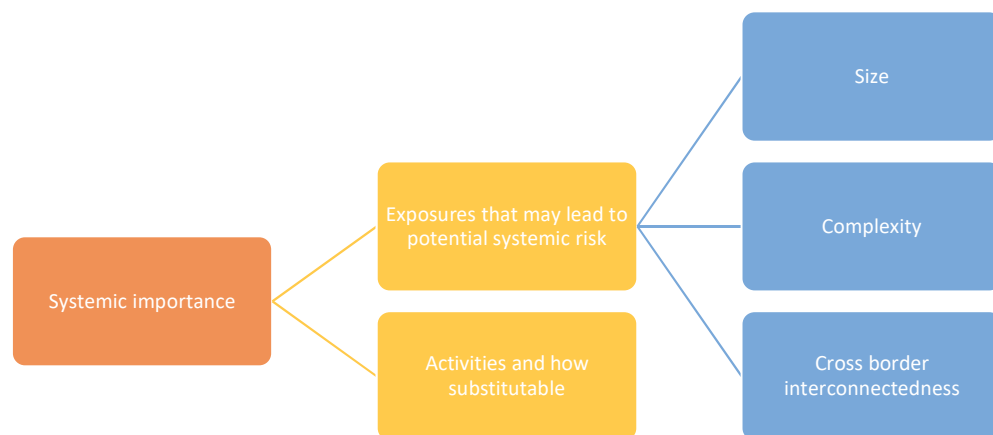
Operational Risk lens



Source: A Nonparametric Operational Risk Modelling Approach Based on Cornish-Fisher Expansion (modified)

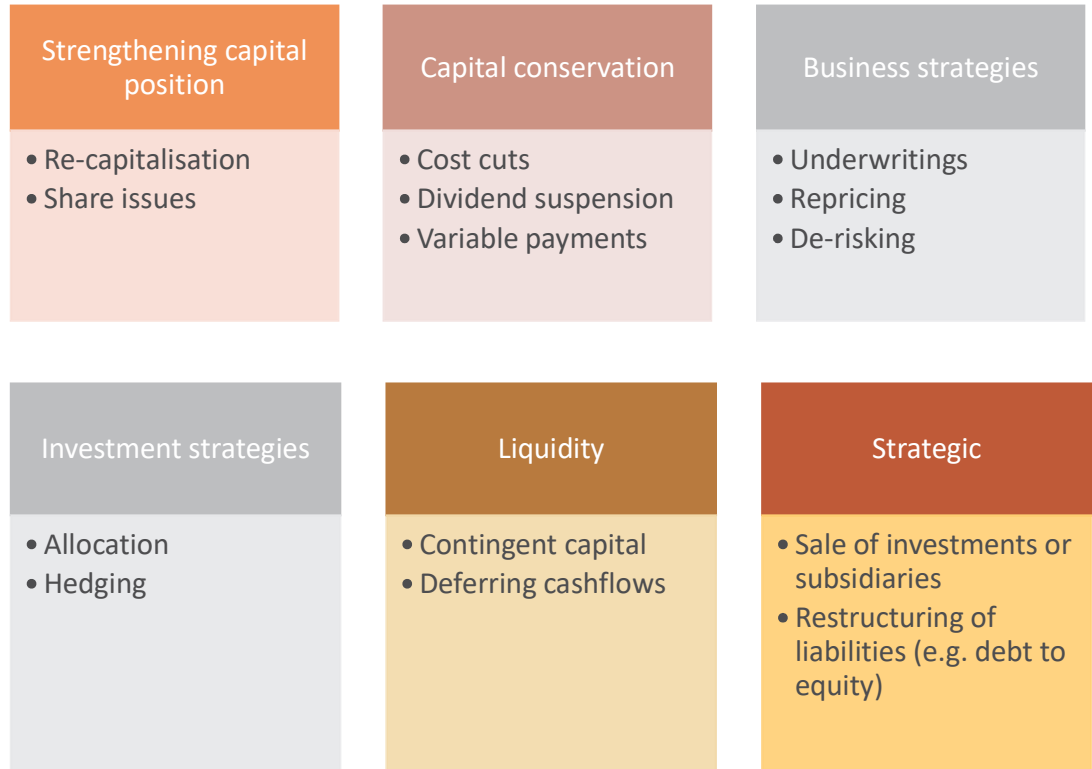
Recovery and Resolution lens

- A recovery plan identifies, in advance, options to restore financial position and viability of a company if it comes under severe stress.
- Requires the consideration of Stress Tests and Scenarios that are idiosyncratic to the institution and systemic to the market and a combination of both.
- Also requires consideration of the speed of materialisation of such stresses
- Pre-emptive rather than preventive (operational risk capital) or corrective (contingency plans)
- Aids the financial institution in understanding its own risks at the extreme spectrum. This in turn means shorter reaction time, faster decision making for a more effective response.
- Can help the regulator understand the financial institution and their systemic importance in the market



Recovery and Resolution lens

- The scenarios address capital shortfall and liquidity pressure.
- The options to cope with the stress scenarios must be credible
- Each option should be supported by information required to assess and implement each option and should be based on realistic assumptions



Recovery and Resolution lens

- Considering Idiosyncratic and Systemic scenarios
 - Test Credibility of plan
 - Test feasibility of recovery options
 - Calibration of trigger framework
 - Give insight into possible impediments to recovery
 - Uncovering vulnerabilities in business

Example figures for illustration purposes only. A trigger framework should ideally have cascading progress

Viability	Viable			Non-viable
Trigger Escalation Route	Target Risk Appetite	Early Warning	Recovery Trigger	
Example Triggers				
Solvency (Capital Requirements)	120-150%	105-100%	<100%	
Liquidity (interest Rates)	2.5%	3.5%	4.5%	
Insurance liabilities (interest rates)	4.5%	1.0%	0.5%	
Lapse (Cyber security sentiment)	5%	12%-20%	40%	
Operation Zone	BAU	Recovery		Resolution

In conclusion

- The current environment and system in which we operate can give rise to events that are not usually modelled by actuaries and not within observations
- These events are of low frequency but high severity
- The events can be severe or moderate but losses could be incurred to actions taken/ inaction or response time and not only the nature of the risk or event
- In order for senior management to take effective, swift and appropriate decisions in times of crisis, there needs to be
An awareness of the risk profile, risk environment, our business vulnerabilities and to approach our analysis of our companies with a critical lens.