



Cambridge Centre for Risk Studies  
**Advisory Board Research Showcase – 29 January 2019**

# Using the Risk Index for Decision Making

Centre for  
**Risk Studies**

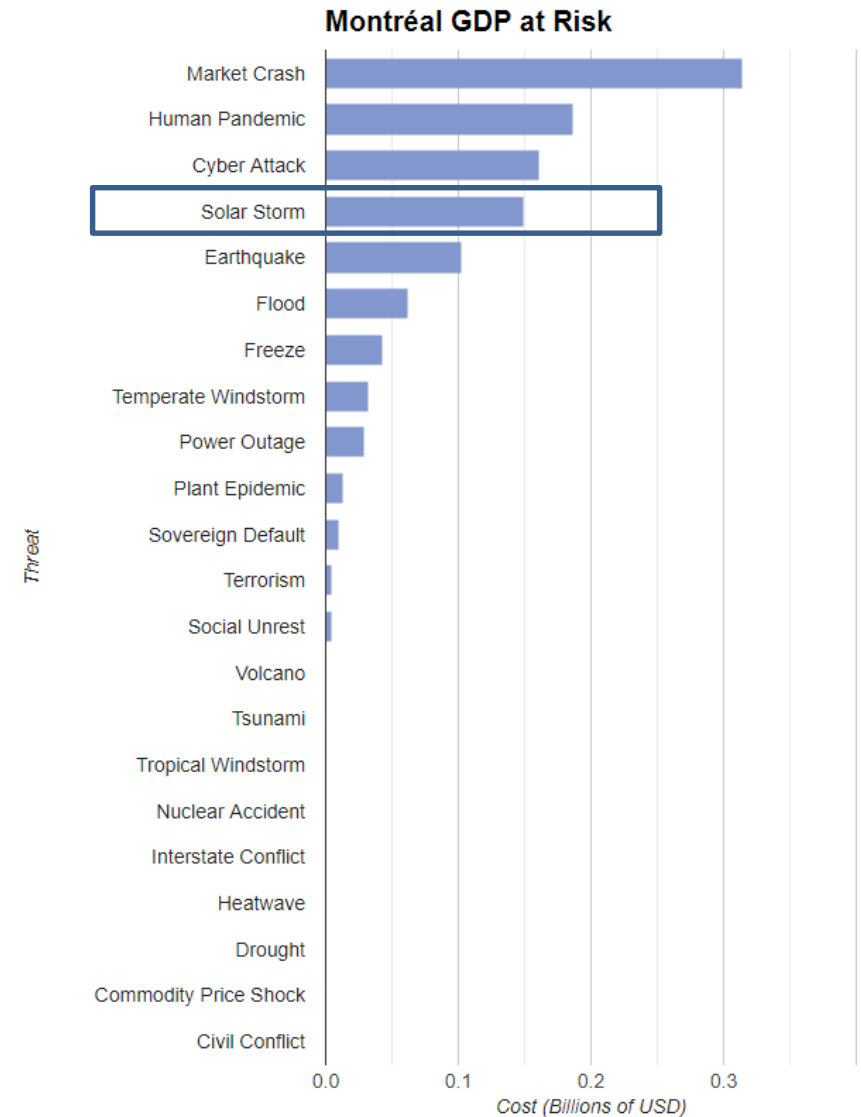


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Director of Research and Innovation  
Cambridge Centre for Risk Studies



# Informing Decision Making

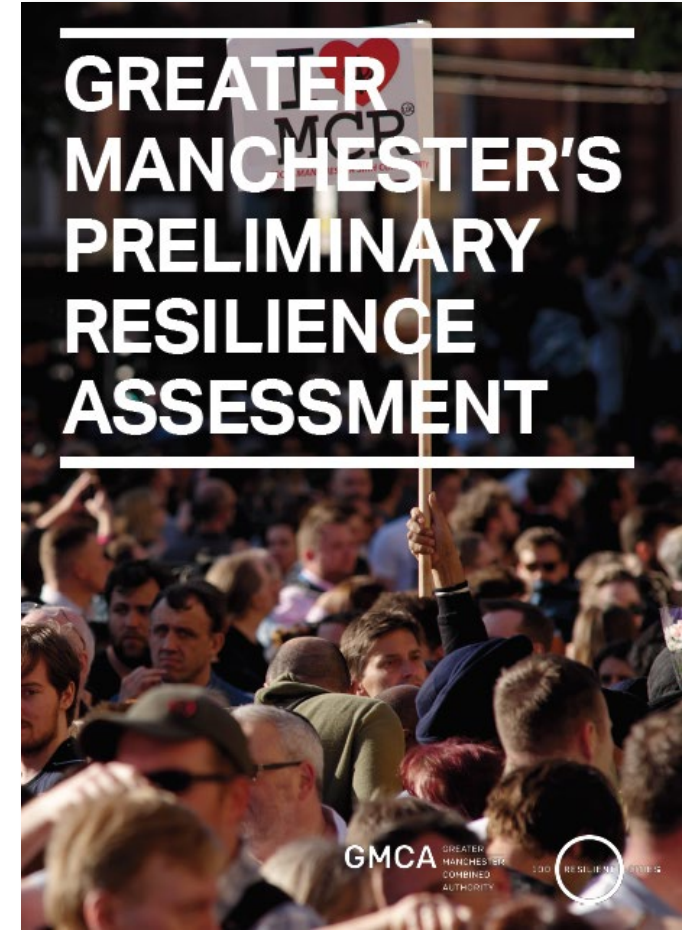
- Anchoring to Facts
- Resilience Analysis
- Insurance
  - Purchasing
  - Growth Opportunities
- Corporate Risk Profiling
  - Tailoring the index to a company





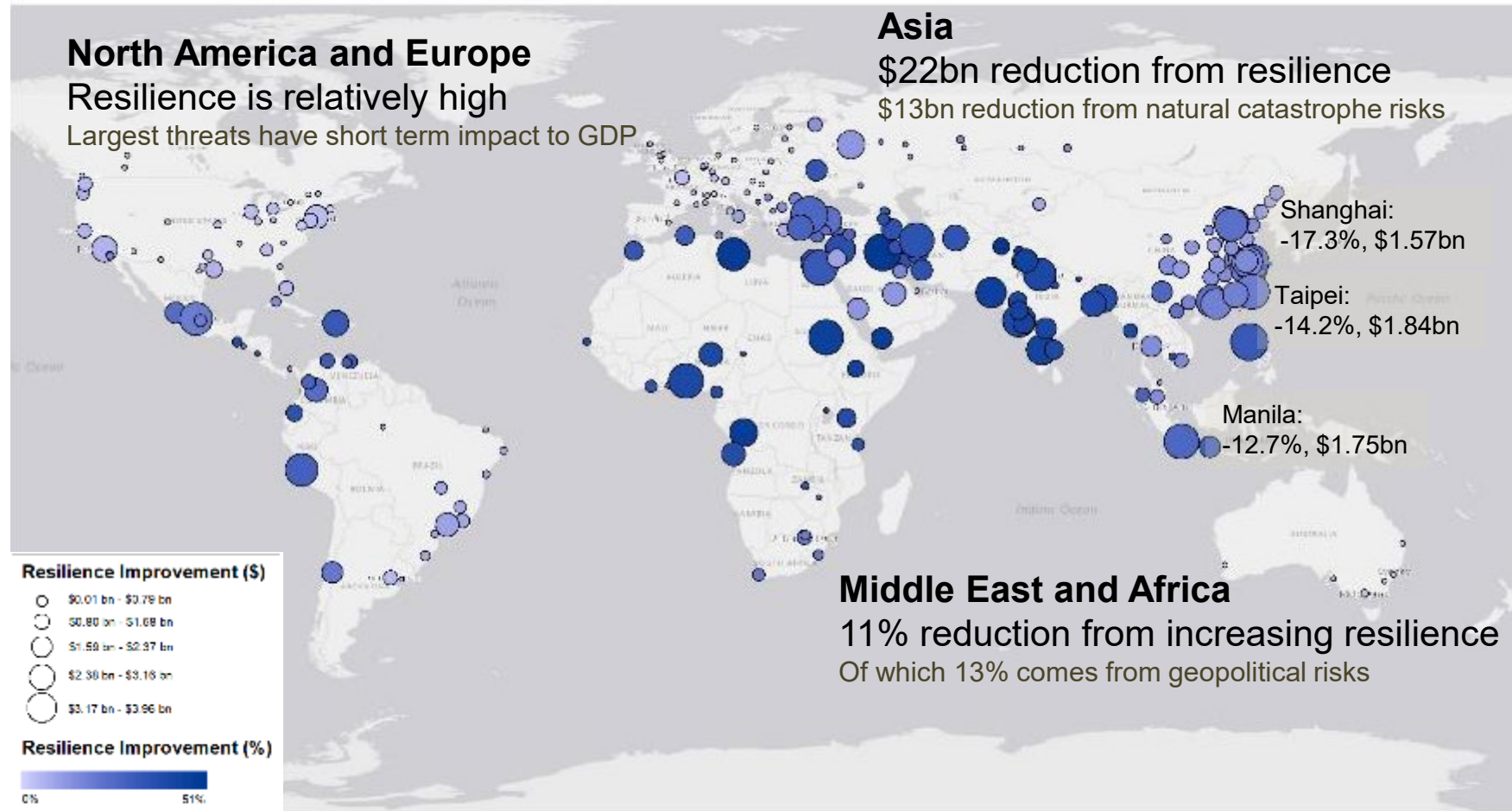
# City Resilience Analysis

- City Risk Index 2018 used in Greater Manchester's Preliminary Resilience Assessment 2018
- Underscores significant threats that impact the city-region economy
- Highlights Greater Manchester's economic exposure to a range of threats
- Advanced the case for exploring how to build a more resilient economy
- Comparison with similar cities worldwide
- Helping city region in its vision to be one of the most resilience places in the world



# Closing the Protection Gap

- If all cities increased their resilience by one ranking, GDP@Risk decreases by \$40bn to \$537bn, a 7% reduction in expected loss



# Site Specific Risk Assessment

## Site Risk Assessment

US Sites (Global Risk Index 2019 Analysis)

Open

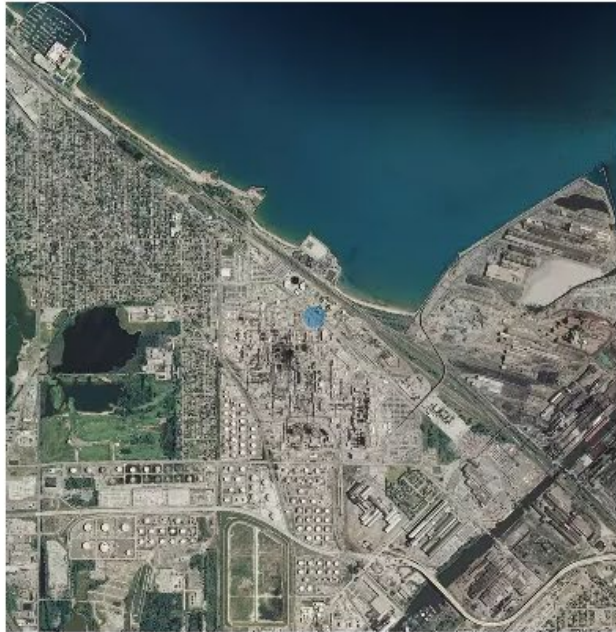
US Sites (Global Risk ...

Whiting Refinery A

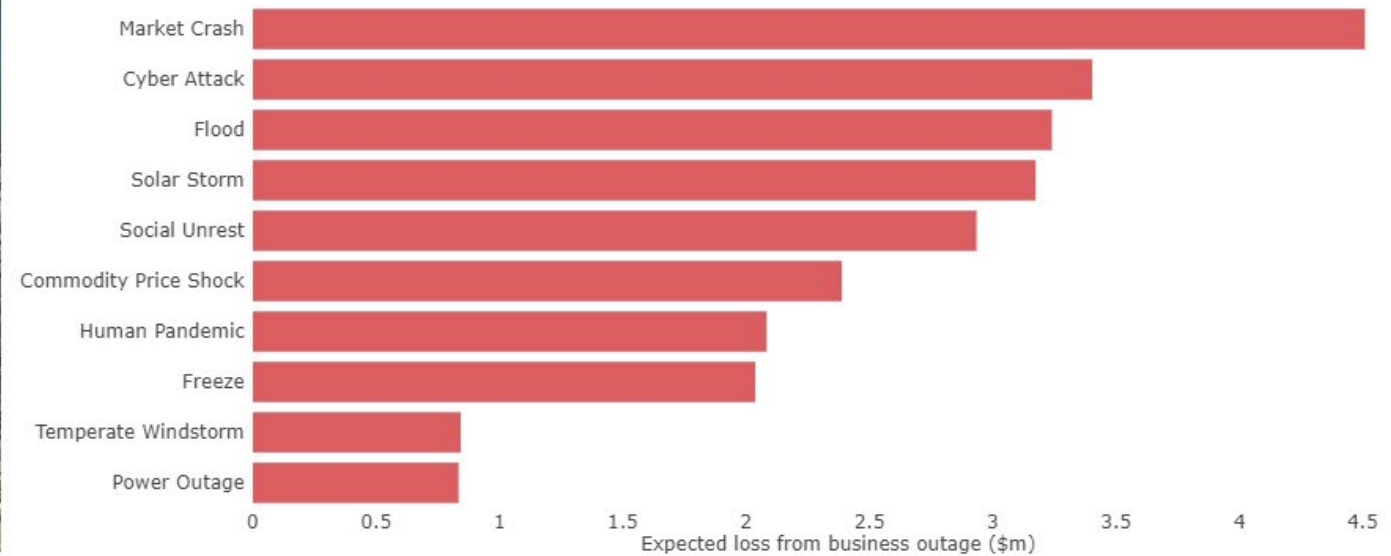
Open

☒ Business Outage ☐ Repair cost

Whiting Refinery A



Top 10 Threats to Revenue at Whiting Refinery A

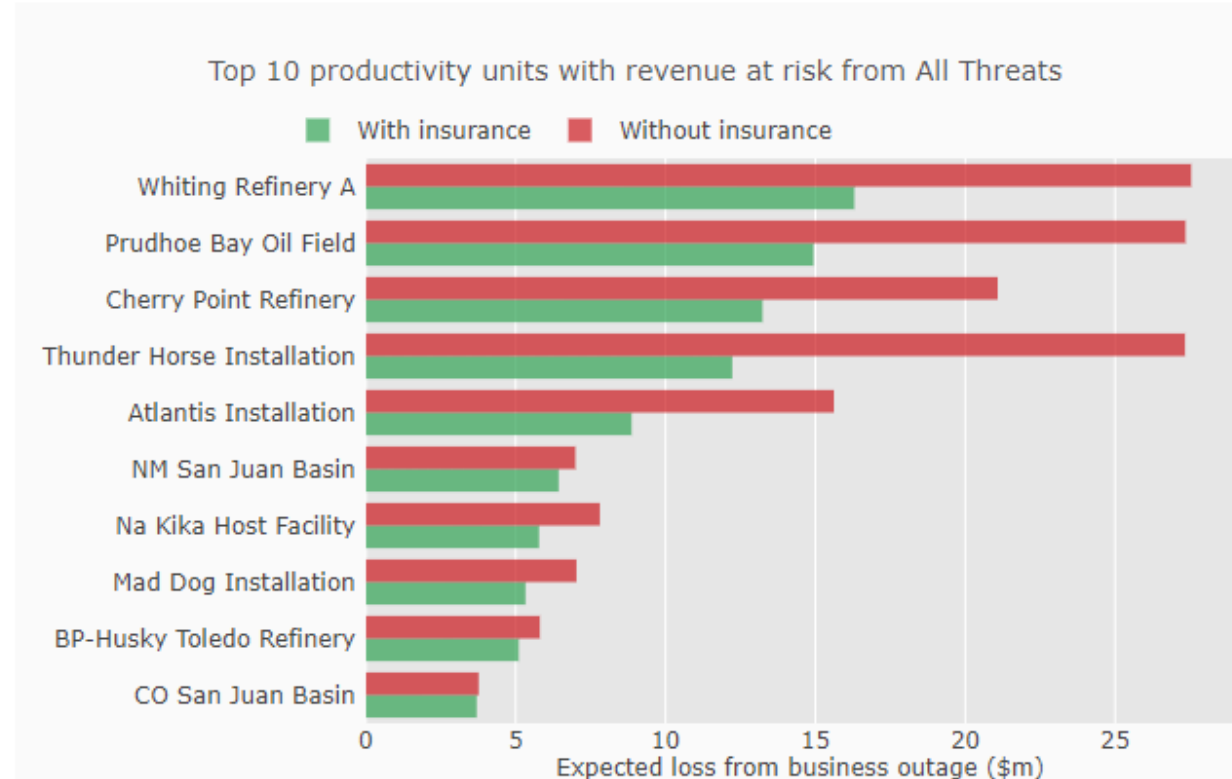


# Site Risk Protection Through Insurance

Top productivity units by threat

Select threat:

All Threats



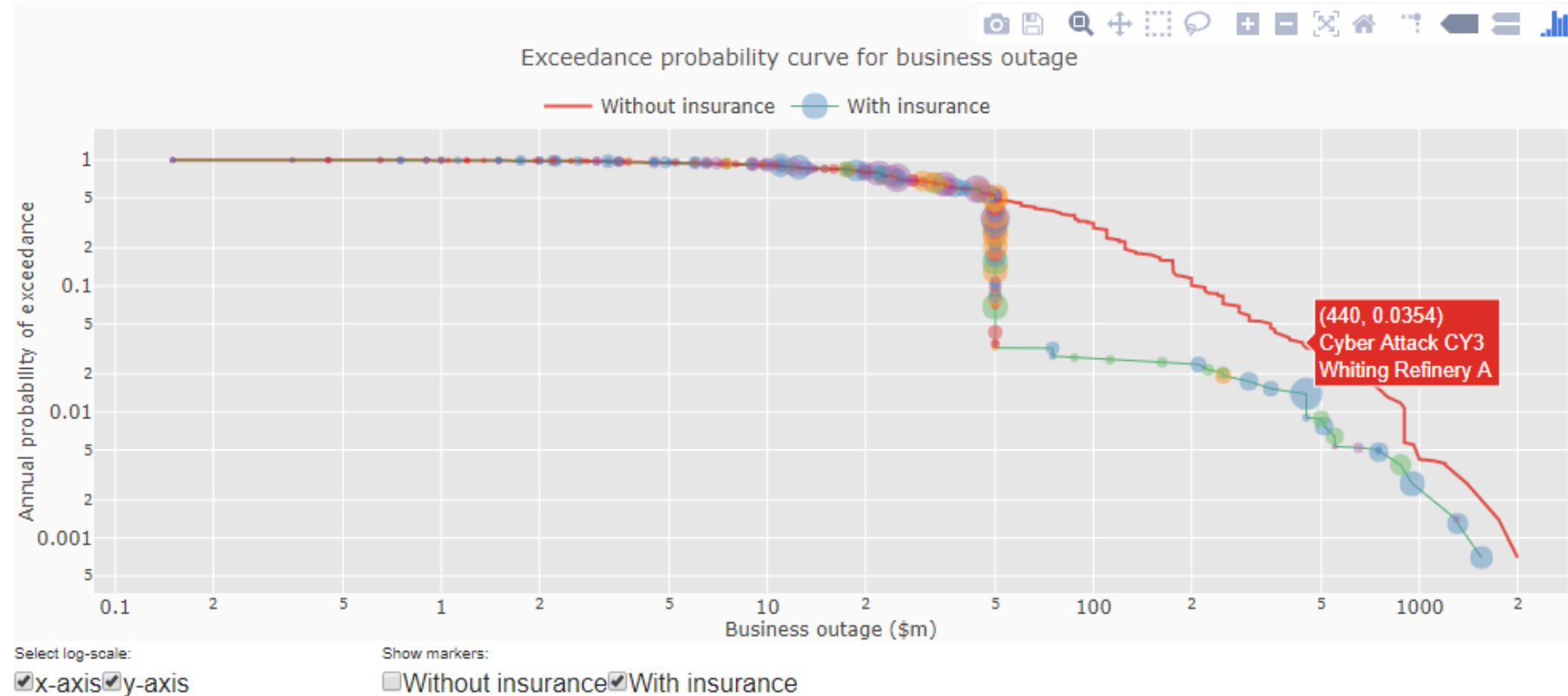
Insurance could reduce the total expected loss from All Threats business outage from \$154.0m to \$95.48m

# Site Risk Protection Through Insurance

Insurance exceedance probability curve

Loss process:

● Business Outage ● Repair cost



Indicate a loss level (in \$m) of concern:

100

A business outage loss level of \$100m has a 28.9% chance of being exceeded without insurance and a 2.6% chance of being exceeded with insurance

Indicate an exceedance probability (%) of concern:

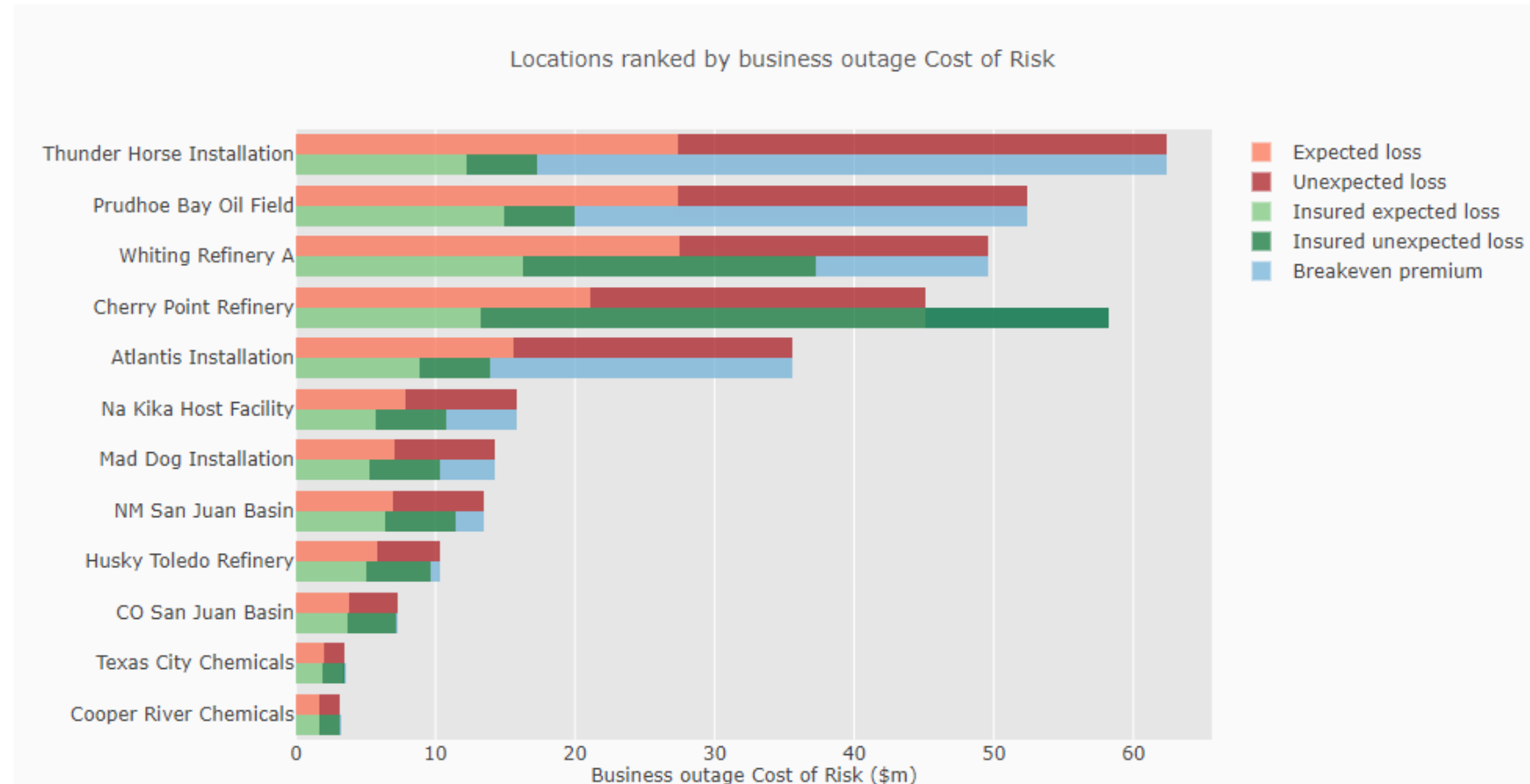
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There is a 5% chance of exceeding a business outage loss level of \$350.0m without insurance and \$50.0m with insurance



# Cost of Risk Analysis

## Cost of Risk Analysis



Cost of capital (%):

10

Risk appetite return period:

100



# Mapping Lines & Exposure to Threats

Insurance Lines

Type of Exposure



Finance  
Economics  
& Trade



Geopolitics &  
Security



Natural  
Catastrophe &  
Climate



Technology &  
Space



Health &  
Humanity

## Commercial Property

Physical Damage  
Revenue Loss / Business Interruption  
Contingent Business Interruption

	1	3	2	
	1	3	2	2
	1	2	3	

## Commercial Political Risk / War Market

Physical Damage  
Revenue Loss / Business Interruption  
Human Injury, Illness or Death  
Financial Asset Devaluation

	3			
	3			
	2			
1	2			

## Casualty Liability

Duty of Care to 3rd Party  
Human Injury, Illness or Death

2	2	2	2	2
	2	2	1	2

## Liability D&O; E&O

Financial Asset Devaluation

2	1	1	2	2
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## Workers Comp

Human Injury, Illness or Death

	3	2	1	2
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## Credit and Surety

Financial Asset Devaluation

3	2	1	1	2
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## Personal Accident

Human Injury, Illness or Death

	2	2	1	2
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## Cyber Liability

Digital Asset Loss

	1		3	
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## Life & Health

Human Injury, Illness or Death

	1	1	2	3
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## Pensions & Annuities

Financial Asset Devaluation

3	1	1	2	1
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# Product Alignment with Risk



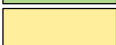
For selected cities

	Istanbul	Jakarta	Kuala Lumpur	Manila	Seoul	Singapore
Insurance Penetration	2.0	0.5	2.7	0.9	4.7	0.7
Recent Growth Rate	V High	High	High	Moderate	Moderate	High

Finance, Economics and Trade	Moderate	Low	High	Low	Moderate	High
Geopolitics and Security	High	Moderate	Moderate	High	High	Low
Natural Catastrophe and Climate	High	Moderate	Low	V. High	Moderate	Low
Technology and Space	Moderate	Moderate	Moderate	Low	Moderate	Moderate
Health and Humanity	High	High	High	High	Moderate	Moderate

<b>Commercial Property</b>	3	2	1	3	2	1
<b>Commercial Political Risk / War</b>	3	2	1	3	3	1
<b>Casualty Liability</b>	3	3	3	1	3	2
<b>Liability D&amp;O; E&amp;O</b>	2	2	3	1	2	3
<b>Credit and Surety</b>	3	2	3	2	2	3
<b>Personal Accident</b>	3	2	2	3	2	1
<b>Cyber Liability</b>	2	1	2	1	3	3
<b>Life &amp; Health</b>	3	3	3	3	2	2
<b>Pensions &amp; Annuities</b>	2	1	3	1	2	3

Risk-driven alignment with insurance product

	Strong Alignment
	Moderate Alignment
	Weaker Alignment

# Mapping a Corporate Global Footprint



# Mapping Supply Chains to Cities



**Apple iPhone**



**Starbucks Coffee**



**Nike Sports shoes**



**Blackberry Phone**



**H&M Clothing - Jacket**

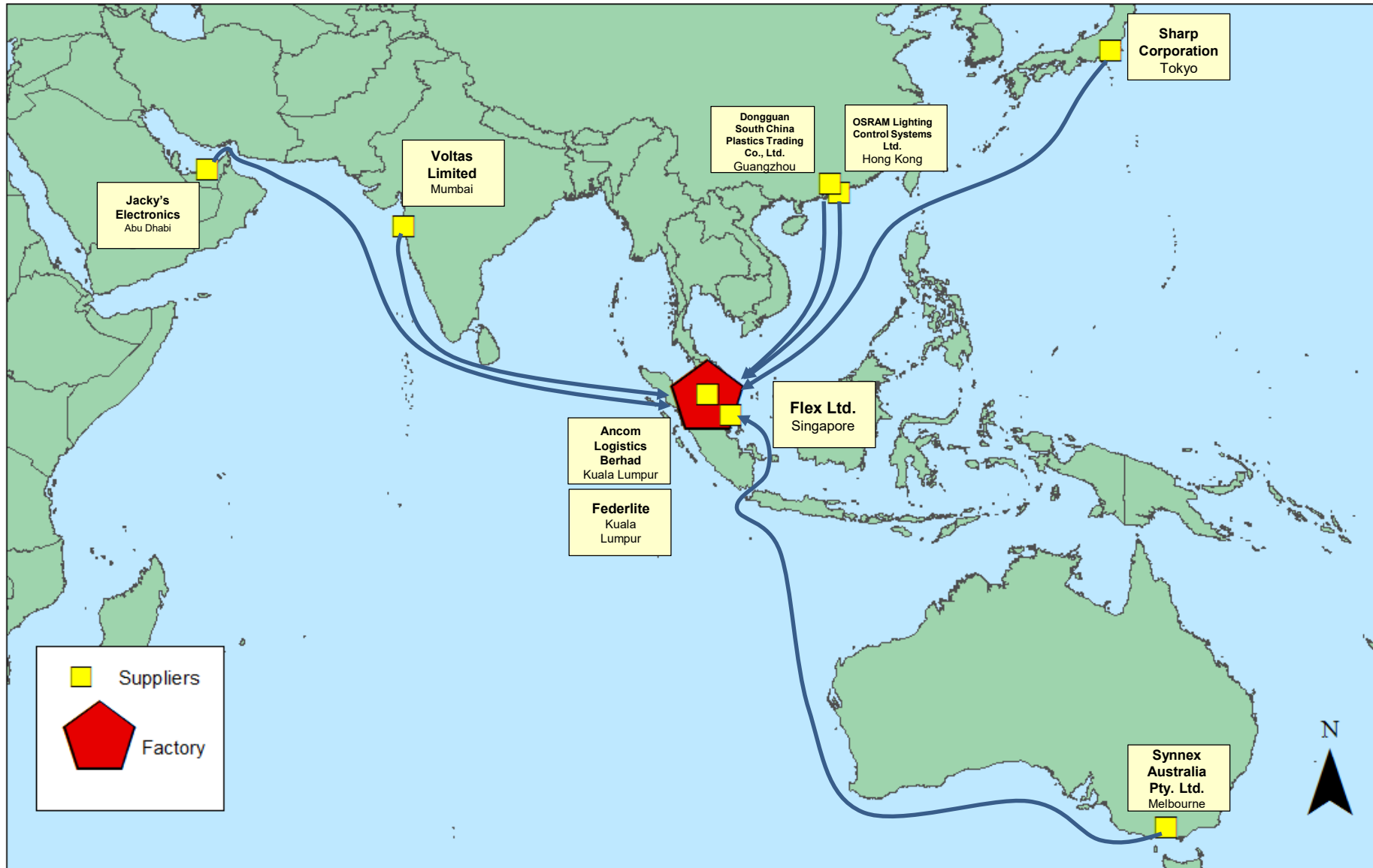


**Adidas Sports shoes**

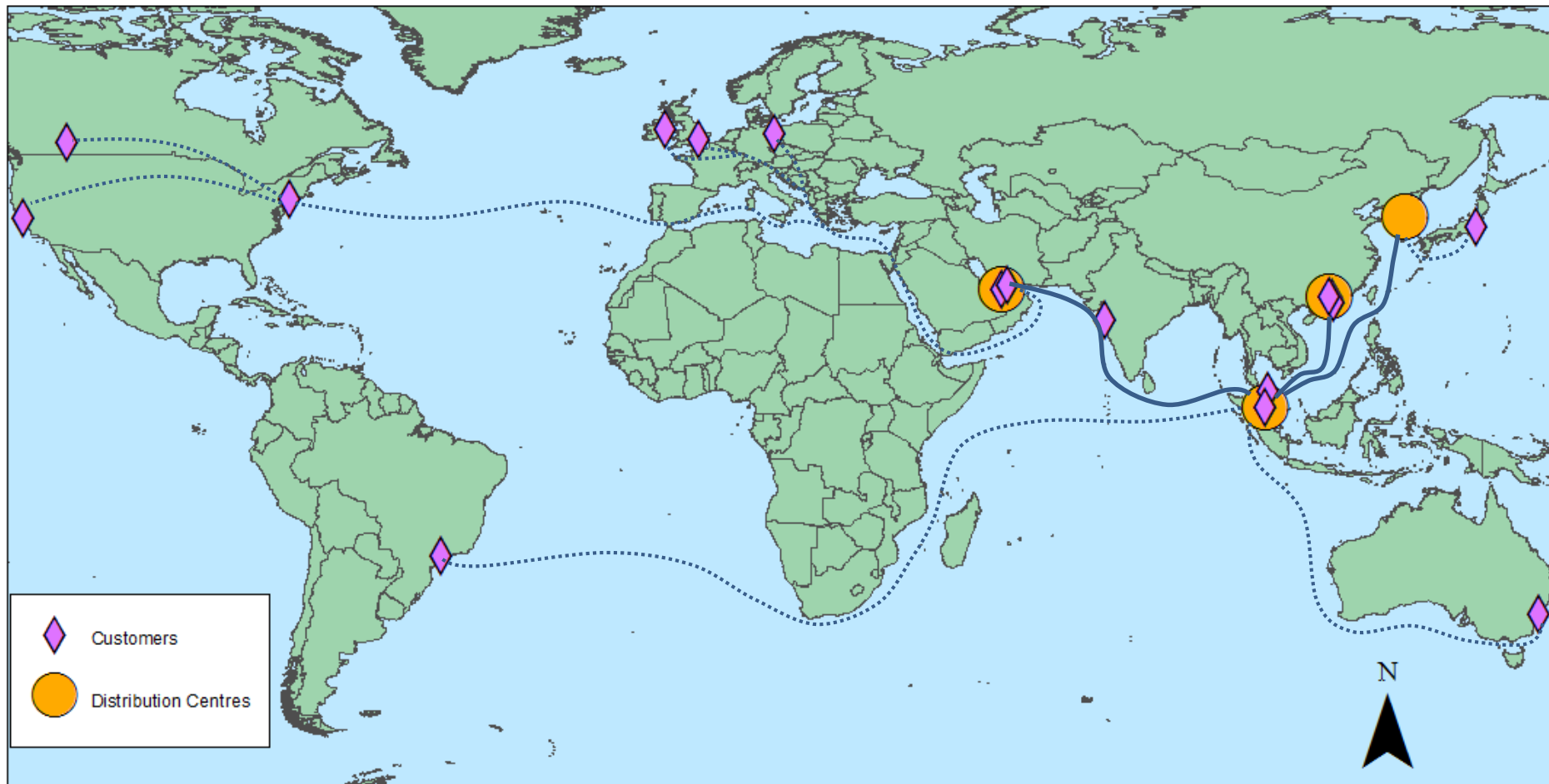




# Supply Chain

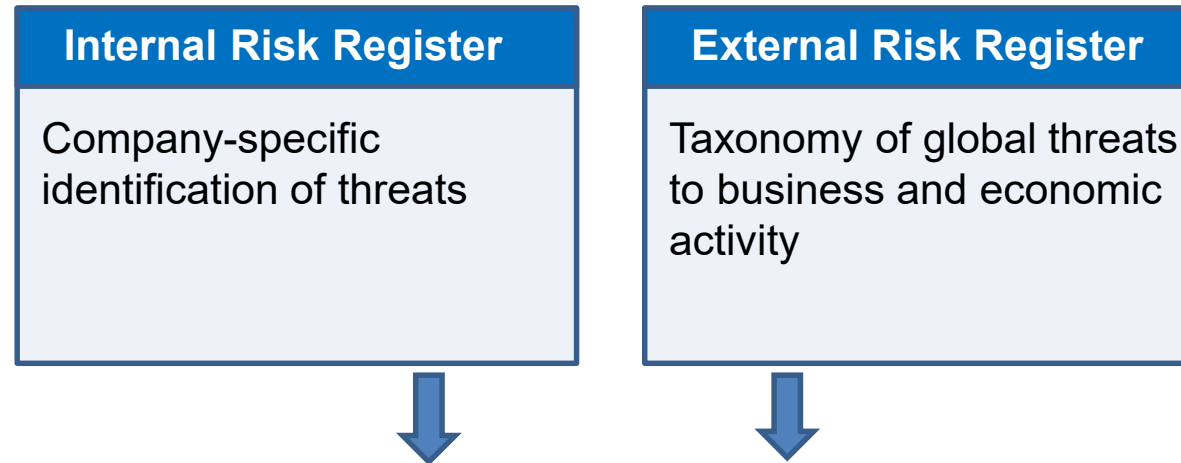


# Distribution System



# Global Risk Index to Corporate Resilience Framework

Integrated risk profile of internal and external risks



## Company-Specific Inputs

Business Network

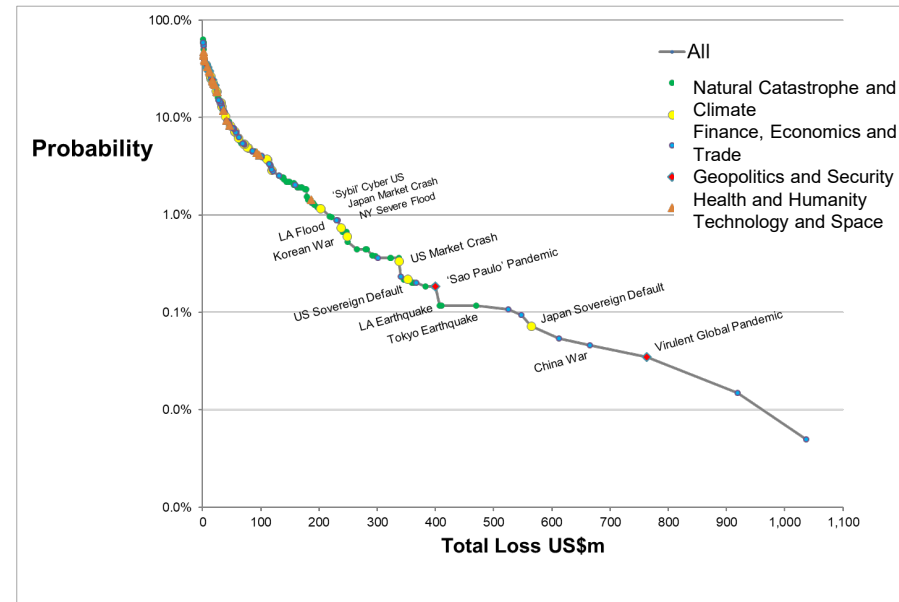
*Locations and revenue sources*

Activity matrix

*Productivity units*

Operational Structure

*Business lines and subsidiaries*



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# Example Scenarios that reach Severe Loss Threshold

Scenarios that cause loss of over \$20 M to either output (supply shock) or consumption (demand shock) include the following examples:

- Sovereign Crisis in Malaysia
- Extreme SE Asia Regional Monsoon Flooding
- Human Epidemic in SE Asia
- Separatism and Social Unrest in UEA
- Financial Crisis Property Crash Emerging Markets
- War between North and South Korea
- War between China and Japan

Similar internal risk scenarios might include:

- Litigation from a major trading partner
- Mass action by consumers, under new regulations



# Scenarios for Corporate Risk Management



Workshop being run by Cambridge for senior executives of a global financial services company to evaluate emerging geopolitical risks and develop scenarios for their risk management response.  
July 2018

# Risk in Corporate Governance

- Financial Reporting Council: The UK Corporate Governance Code 2018
- “The board should carry out a robust assessment of the company’s emerging and principal risks”
- “Principal risks ... threaten the company’s business model, future performance, solvency or liquidity and reputation”
- “..companies should consider the potential impact and probability of the related events”



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