



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

Risk Flashes for 2019

Centre for
Risk Studies



Jennifer Copic
Research Associate
Cambridge Centre for Risk Studies



2019 Global Risk Index

Measure impact of 22 threats on cities that contribute to 41% of global GDP



Annual update of GDP@Risk:

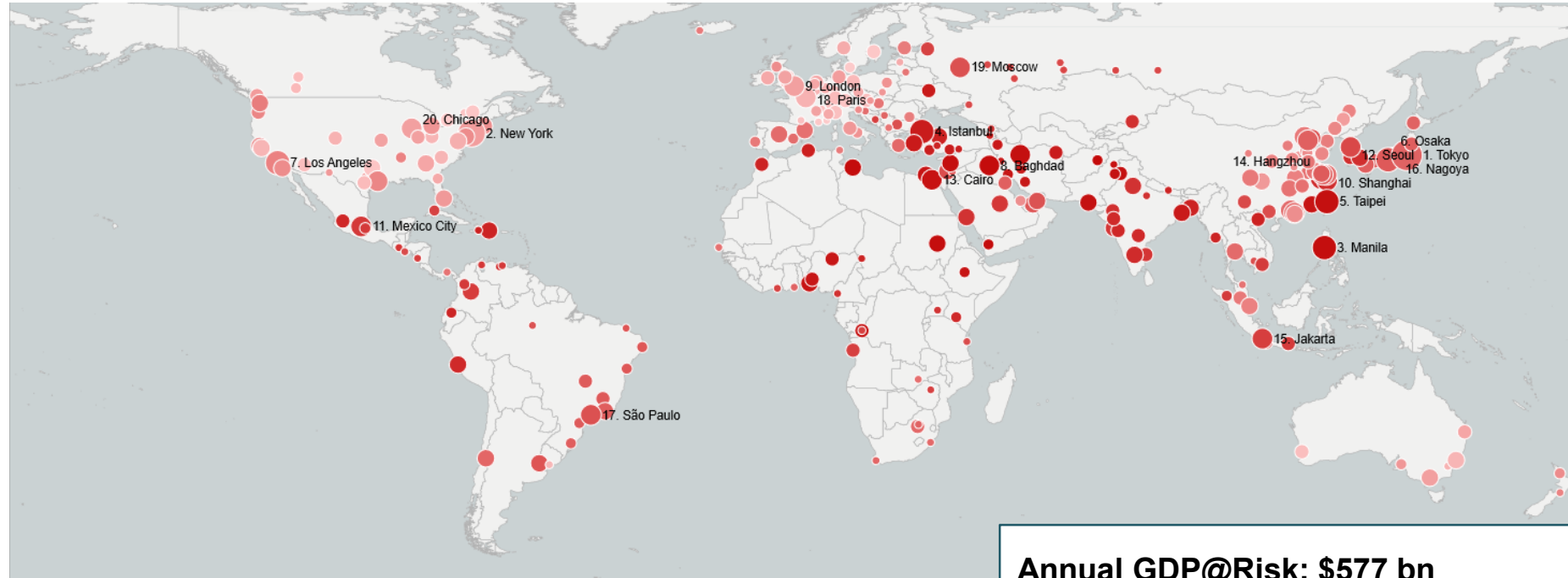
2015: \$475bn

2016: \$494bn

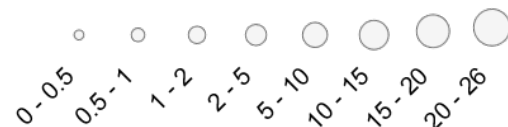
2017: \$513bn

2018: \$546bn

2019: \$577bn



GDP@Risk 2019 (US\$ Bn)



% GDP@Risk 2019



Annual GDP@Risk: \$577 bn
Percent GDP@Risk: 1.57% of 2019 GDP

Number of Cities: 279
GDP: \$36.8 trn (2019)
Outlook Period: 3 years

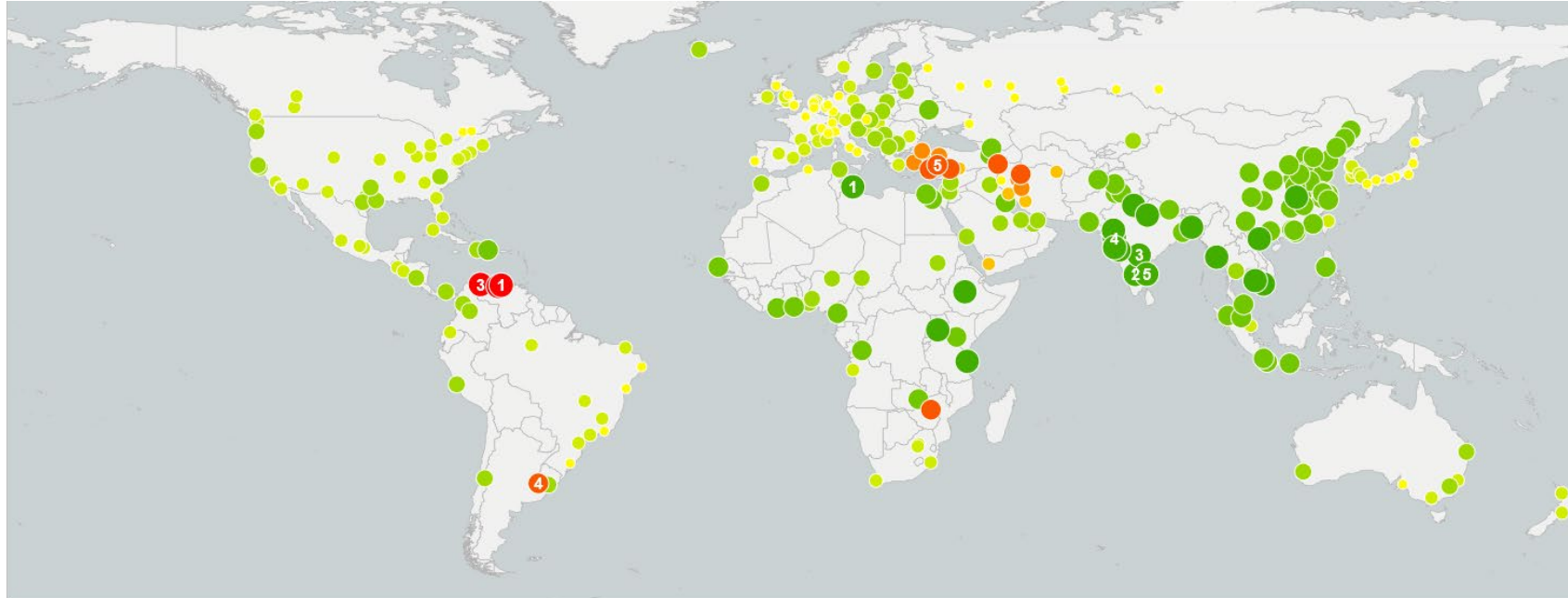
GDP@Risk - Methodology

$$\begin{array}{ccccccc} \text{City GDP} & & \text{Threat} & & \text{Threat} & & \text{Rate of} \\ \text{Projection} & + & \text{Assessment} & + & \text{Vulnerability} & + & \text{Recovery} \\ \text{Oxford} & & \text{Evidence} & & \text{Evidence} & & \text{INFORM,} \\ \text{Economics} & & \text{Base} & & \text{Base} & & \text{Sigma, OEM} \\ \text{(OEM)} & & & & & & \\ & & & & & = & \text{Expected} \\ & & & & & & \text{GDP@Risk} \\ & & & & & & \text{Loss} \end{array}$$



GDP@Risk - Methodology

$$\begin{array}{ccccccc}
 \text{City GDP Projection} & + & \text{Threat Assessment} & + & \text{Threat Vulnerability} & + & \text{Rate of Recovery} & = & \text{Expected GDP@Risk Loss} \\
 \text{Oxford Economics (OEM)} & & \text{Evidence Base} & & \text{Evidence Base} & & \text{INFORM, Sigma, OEM} & &
 \end{array}$$



% GDP Change 2019

-7%

0%

14%

Top Cities by % GDP Change

Top 5

1. Tripoli, Libya
2. Bangalore, India
3. Hyderabad, India
4. Surat, India
5. Chennai, India

Bottom 5

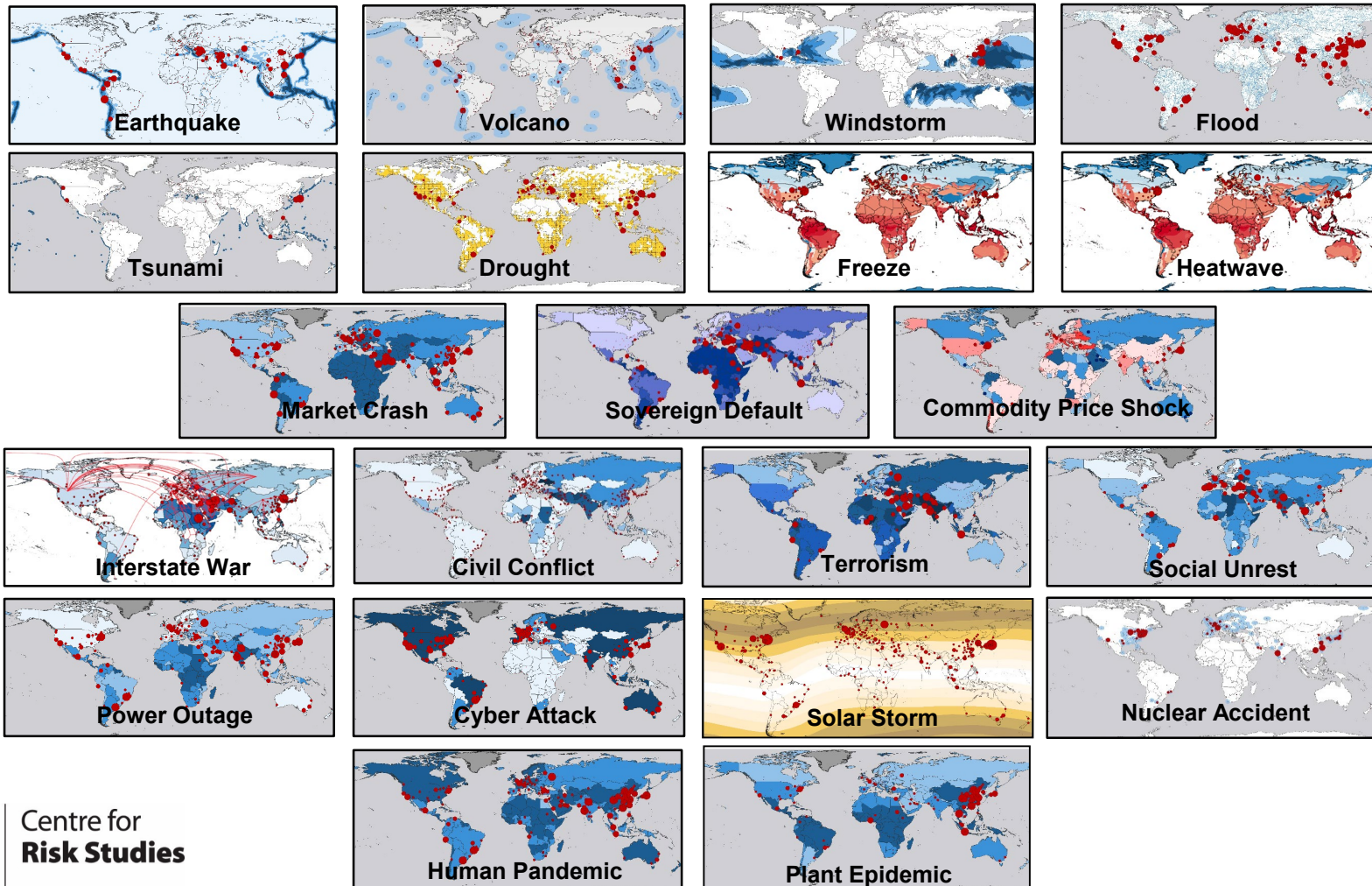
1. Caracas, Venezuela
2. Maracay, Venezuela
3. Maracaibo, Venezuela
4. Buenos Aires, Argentina
5. Konya, Turkey



GDP@Risk - Methodology

City GDP Projection **+** Threat Assessment **+** Threat Vulnerability **+** Rate of Recovery **=** Expected GDP@Risk Loss

Oxford Economics (OEM) *Evidence Base* *Evidence Base* *INFORM, Sigma, OEM*



GDP@Risk - Methodology

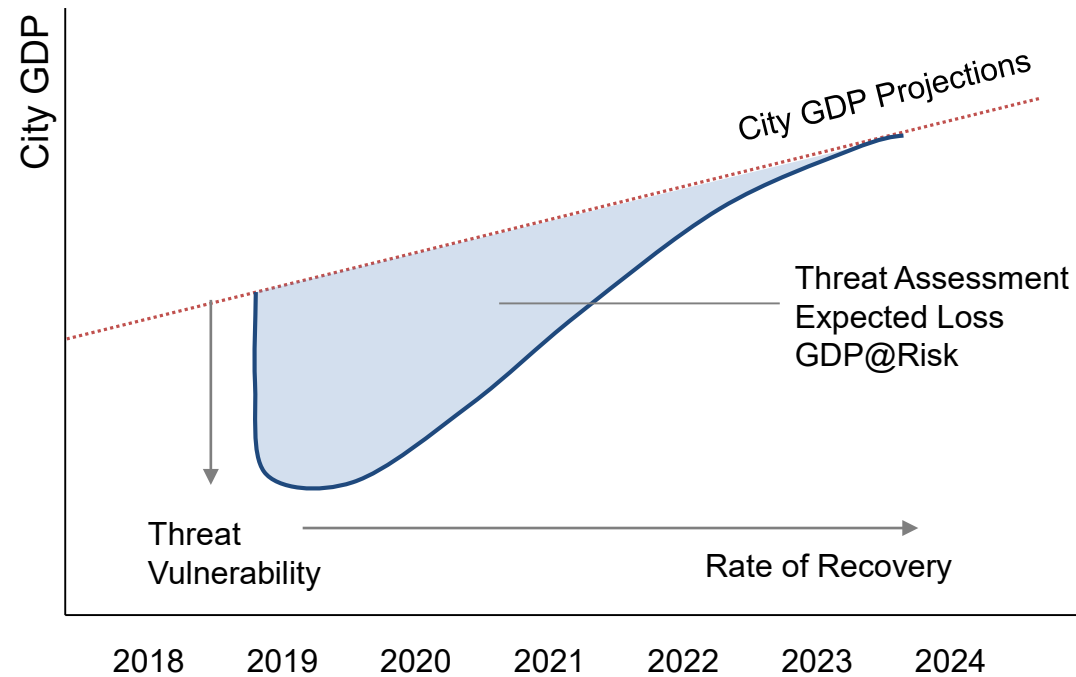
$$\begin{array}{ccccccc}
 \text{City GDP Projection} & + & \text{Threat Assessment} & + & \text{Threat Vulnerability} & + & \text{Rate of Recovery} & = & \text{Expected GDP@Risk Loss} \\
 \text{Oxford Economics (OEM)} & & \text{Evidence Base} & & \text{Evidence Base} & & \text{INFORM, Sigma, OEM} & &
 \end{array}$$

- Each city is assigned a rate of recovery score based on three core components
- Threat vulnerability + Rate of recovery = Resilience

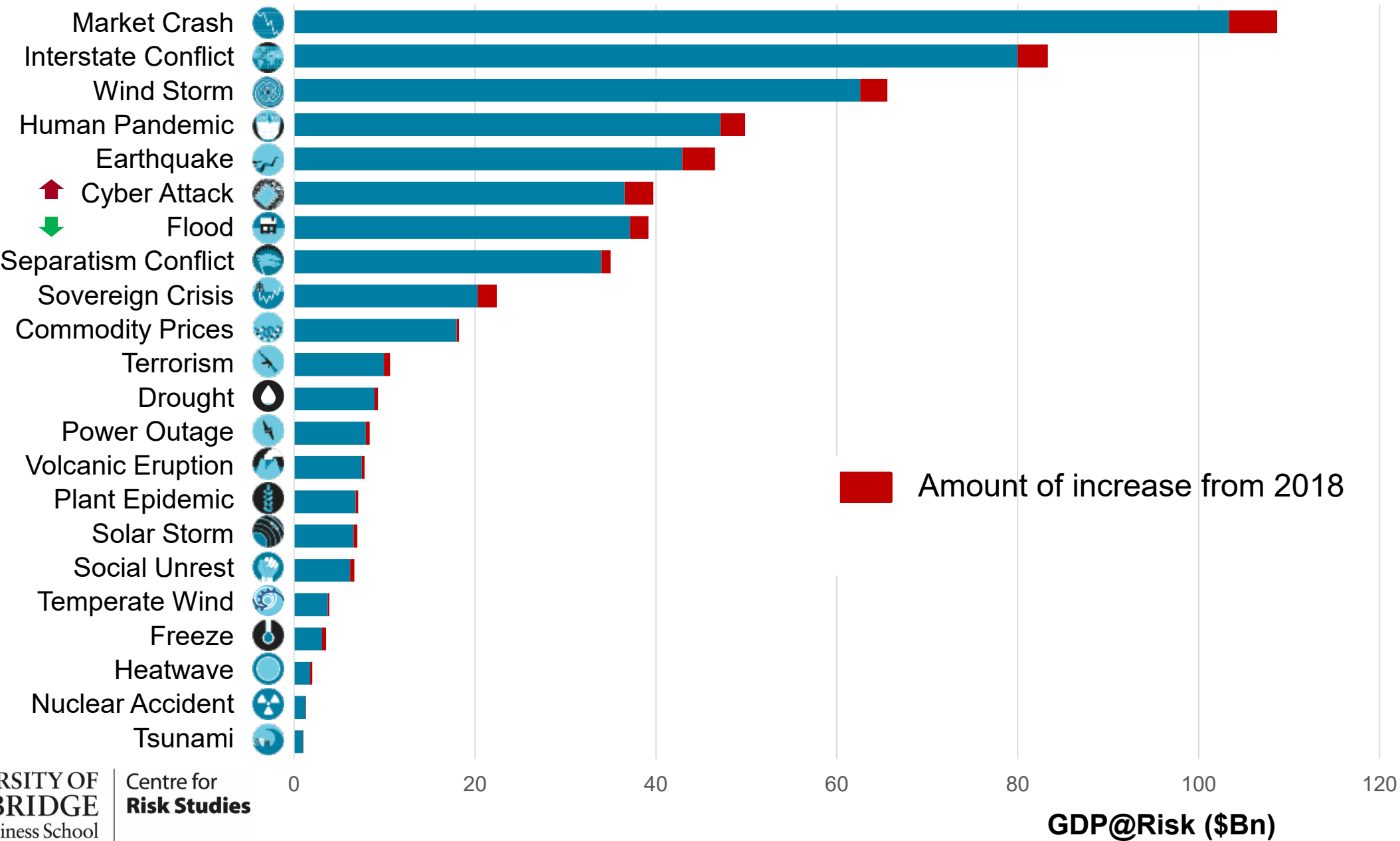
Resilience												
Threat Vulnerability (CRS)	Rate of Recovery											
	Vulnerability (INFORM)					Lack of Coping Capacity (INFORM)					Fiscal Resilience	
	Socio-Economic		Vulnerable Groups			Institutional		Infrastructure			Wealth	Insurance
Vulnerability assessment per threat type	Development deprivation	Inequality	Aid dependency	Uprooted people	Other vulnerable groups	Disaster Risk Reduction	Governance	Communication	Physical Infrastructure	Access to health systems	City GDP per capita (OEM)	Non-Life Insurance Penetration (Sigma)

GDP@Risk - Methodology

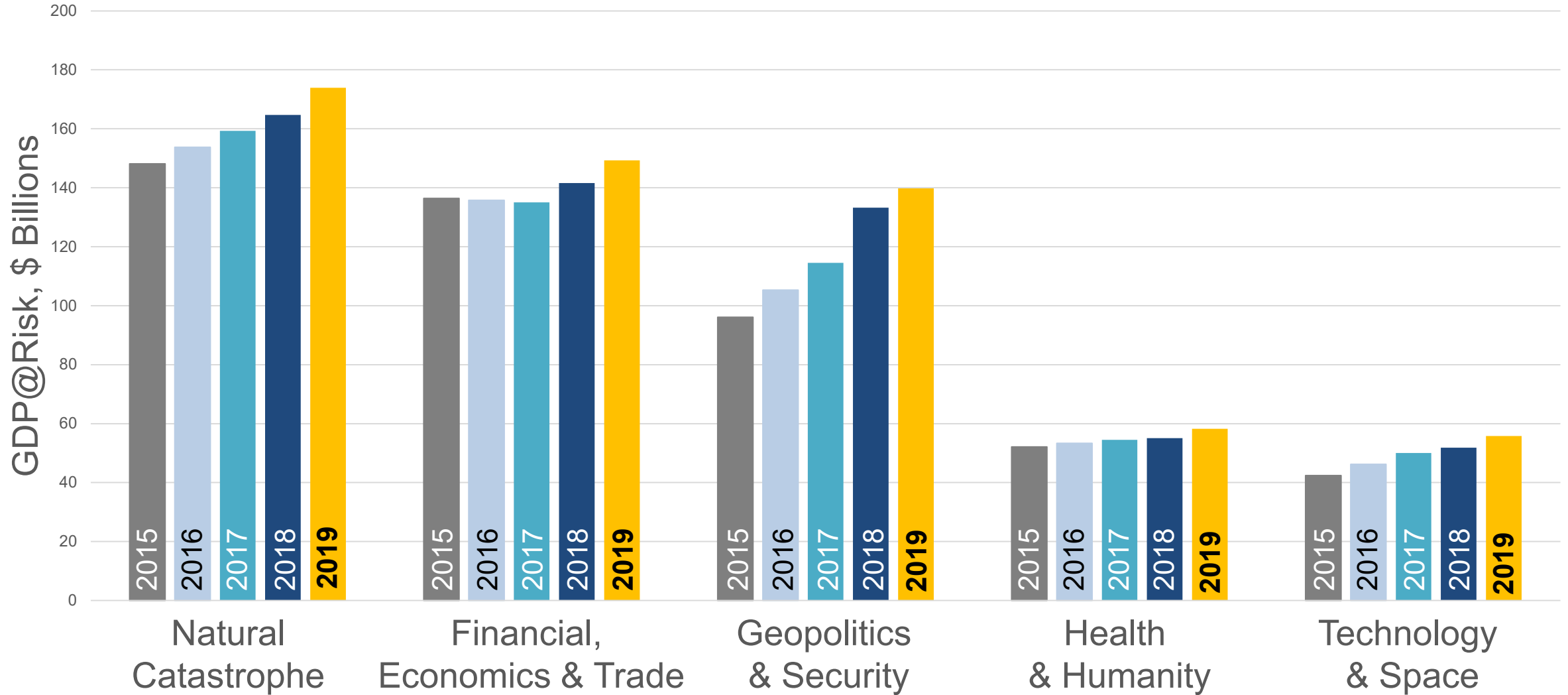
$$\begin{array}{l} \text{City GDP Projection} \\ \text{Oxford Economics} \\ \text{(OEM)} \end{array} + \begin{array}{l} \text{Threat Assessment} \\ \text{Evidence Base} \end{array} + \begin{array}{l} \text{Threat Vulnerability} \\ \text{Evidence Base} \end{array} + \begin{array}{l} \text{Rate of Recovery} \\ \text{INFORM, Sigma, Fiscal} \end{array} = \text{Expected GDP@Risk Loss}$$



2019 Contribution to Risk by Threats



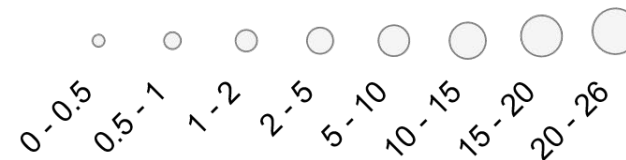
Change in Risk by Threat Categories Over Time



2019 Cambridge Global Risk Index



GDP@Risk 2019 (US\$ Bn)



% GDP@Risk 2019

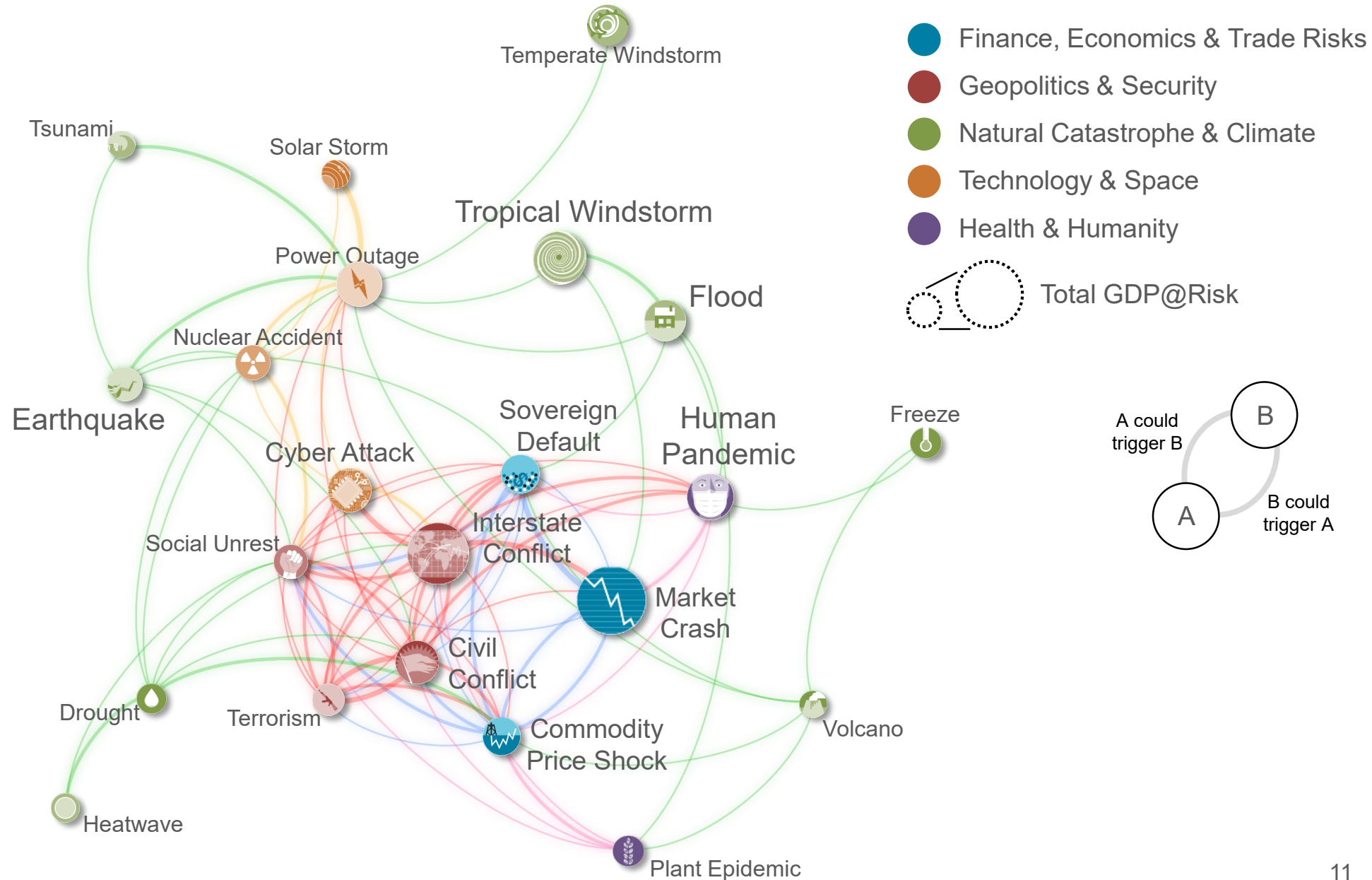


Interconnected Causes of Risk

Threat Linkage Levels

0	No causal linkage, and no significant ability to exacerbate
1	No causal linkage, but would exacerbate consequence of threat B if they coincided
2	Weak potential for threat A to trigger threat B
3	Moderate potential for threat A to trigger threat B
4	Strong potential for threat A to trigger threat B
5	Very strong potential - highly likely that if threat A occurs, it would trigger threat B

Only linkage levels 2 to 5 are shown in diagram





Kelly
Quantrill

Technology and Space



Nuclear
Accident



Power
Outage



Cyber
Attack



Solar
Storm

Geopolitics and Security



Interstate
Conflict



Terrorism



Civil
Conflict



Social
Unrest



James
Bourdeau

Natural Catastrophe and Climate



Earthquake



Tropical
Windstorm



Temperate
Windstorm



Tsunami



Flood



Volcano



Drought



Freeze



Heatwave

Finance, Economics and Trade



Market
Crash



Sovereign
Default



Commodity
Price
Shock

Health and Humanity



Human
Pandemic



Plant
Epidemic



Kayla
Strong



Centre for
Risk Studies



UNIVERSITY OF
CAMBRIDGE
Judge Business School