Cambridge Centre for Risk Studies London Risk Briefings

#### **Geopolitical Conflict**

Defining a Risk Test Scenario for managing the business risks posed by geopolitical conflicts

Centre for Risk Studies



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### **Historical Perspective on Geopolitical Conflict**

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Tamara Evan Centre for Risk Studies

### **Geopolitical Conflict: A Definition**

Conventional conflict is a contested incompatibility over government and/or territory, where two parties use armed forces, at least one of which is the government of a state.



## **Direct Impacts of Geopolitical Conflict**

Loss of life and personal injury (military and civilian)
Extensive physical damage
Major threat to government and political systems, national symbols and national identities

- Depletion of available
   resources and economic
   output
  - Breakdown of trading links and trade relationships

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Damage and disruption to business and infrastructure Forced migration and population displacement Environmental damage Epidemics and health crises

# **Case Studies: World Wars I and II**



#### World War I (1914-1918)

- ~12 million military casualties
- ~2.2 million civilian deaths (+ 50-100 million deaths in 1918 flu epidemic)
- Undid more than 50 years of globalisation efforts
- Overall cost was 4-5 times the value of all of France and Belgium's wealth in 1914; roughly £1.25 trillion for Britain alone
- Germany paid off WWI reparations on 3 October, 2010



#### World War II (1939-1945)

- ~60-70 million military and civilian deaths (roughly 3% of world population at the time)
- 70% of European industrial infrastructure destroyed
- London Blitz (1940-41) saw the capital bombed for 57 consecutive days, 1 million homes destroyed and led to a 25% loss in industrial production
  - 84% of UK GDP and 18.6% of National Wealth



## A Decline in the Incidence of War



Average Number of Battle Deaths per Statebased Armed Conflict, per Year, 1950-2005\*

Interstate wars, though relatively few in number, are by far the deadliest form of conflict

\*Fatality figures are "best estimates."

There have been two world wars in the past century

- But we don't believe that a war of a similar magnitude is a 1-in-100-year scenario
- All indicators of a conflict between world superpowers have diminished significantly in the period of globalized economic interconnectivity
- Conflict has diminished in an era of "Pax Americana" – the US as global policeman



Data source: UCDP/PRIO and Lacina & Gleditsch<sup>20</sup>

## "The Long Peace"





## WEF Global Risk Report 2015

#### The Global Risks 2015 Report cites 'Interstate conflict' as the number one most likely risk facing the world over the next ten years

- This is the first time that interstate conflict has featured in the top ten list of global threats since the report's first publication
- Global Risks is a perception survey of 896 business professionals and academics
- It is largely driven by the events of 2014

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#### **Changes in the Perception of Risks in the Past Year**

- WEF analysis attributes the new emphasis on the threat of war to the 're-entry into an era of the non-state state'
- In the period of recovery following the Global Financial Crisis, disillusion with globalisation and social frustrations are contributing to a rise in national sentiment
- Recent events which have raised the profile of interstate conflict risk (Russia's entry into Crimea; rise of Islamic State; tensions in East Asia) reflect the relationship between the world economy and geopolitical tensions





## **Historical Costs of War**

### WAR COSTS GO ON AND ON

The US government has spent more than \$270 billion in payments to disabled veterans, wartime veterans and their survivors since 1970. A look at the annual amount paid to recipients by war:



- Wars do not have to be particularly large or deadly to be significantly expensive or impactful
- Continuing costs of war can linger for centuries
- Most nation states still retain capability for war
- 2.5% of global GDP funds military expenditures
- Increased globalisation diminishes the risk of widescale war but means that wars which do occur have greater global implications
- The changing nature of modern warfare threatens new frontiers and a wider number of industries



## **The Changing Face of Modern Warfare**



#### Korean War (1950-53)

- 62% rise in US public taxation
- 5.3% rise in US domestic inflation
- 10% loss of the Korean population
- Exclusion of China from the UN



#### Gulf War (1990-91)

- US initially made a profit on the war
- Severe oil price shocks led to a commercial tourism crisis in the West
- Trans-Atlantic traffic dropped 50%



#### Iraq War (2001-13)

- Arguably contributed to the conditions that led to the 2008 financial crisis
- Estimated loss of \$21 billion in Iraqi economy
- Severe damage to the US' reputation internationally



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### **Geopolitical Conflict as Political Science**

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**Richard Hartley** 

Cytora





### Who We Are

Cytora is a technology company that provides data analytics to help organizations anticipate Political and Geopolitical Risk







## The End of Pax Americana?

#### **Future Trends**

- The rise of China & other states
- Increasing Multipolarity
- America's role of 'World Policeman' being eroded

#### **Characteristics**

- Democracy may make the world more Peaceful
- Economic development and Interdependence
- International Institutions







## **Power Distribution**

Distribution of power plays an important role in determining the patterns and probability of warfare and is best expressed in degrees of polarity (the concentration of power within the international system).







#### **Key Casual Factors**



#### **Competition for Resources**

Competition for natural resources in close proximity to states - to support objectives like industrialization, welfare – enhances the probability of war.



#### **Economic Decline**

Unemployment and deprivation increase the likelihood of civil insurgency and create conducive conditions for leaders to instill aggressive nationalist ideologies.



#### **Political Factors**

Politicians use war to influence domestic support. The position in an electoral cycle and availability of popular support bases are likely to affect the decision to resort to war



#### Ideological Change

Certain ideologies are more conducive to war than others – e.g. Authoritarian regimes espousing expansionary ideologies (Putins Russia, Nazi Germany)





## **Magnitude Scale for Conflicts**

	Level 1	Level 2	Level 3	Level 4
Proponents	Conflicts between minor powers – No superpower	One superpower against a minor power/Military Intervention	One superpower against another G20 nation-state	More than two superpowers engage in direct conflict
Polarity	Any	Any	Any	Multipolar
Power Asymmetry	Balanced low level of power	Major asymmetry	Moderate asymmetry	Balanced
Observed Frequency	Several conflicts a decade, and always a minor war somewhere in the world	Expect one or two a decade, as US or allies exert increasing power as global policemen	In modern times, expect only one or two a century as superpowers avoid confronting each other	20 <sup>th</sup> century history does not apply
Current Likelihood	Common (>50% a year)	Occasional (10% a year)	Unlikely (1% a year)	Extremely Unlikely (0.1% a year)
Duration of conflict	Long	Short	Short-Medium	Long
Historical Example	Yugoslav wars Congo wars	Ukraine conflict; 'Desert Storm' Iraq; Afghanistan invasion	US-Vietnam War	WWI WW2
	IRAQ/Syria - ISIS	Ukraine-Russia		



Centre for **Risk Studies**  Level Selected for Scenario



## Magnitude Scale Applied – Ukraine-Russia 2014

Туре 2				
One superpower against a minor power/Military Intervention				
Any				
Major asymmetry				
Expect one or two a decade, as US or allies exert increasing power as global policemen				
Occasional (10% a year)				
Short				
Ukraine conflict; 'Desert Storm' Iraq; Afghanistan invasion;				
Ukraine, Russia Conflict				

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- Major power asymmetry in terms of economic, military and diplomatic resources
- Enabled by growing multipolarity as incentive for Russia to intervene is increased by declining US power
- Historical legacy of conflict and recent Russian paternalism
- Expansionist narratives carry import with both leaders and populations



### Where Might Future Conflicts Occur?



- Over 100 scenarios of potential interstate conflicts
- Identified from antagonism; historical wars; military dispositions; etc.
- Categorized by military power of potential protagonists





## **Candidate Sites of Future Conflict**







#### STRUCTURED DATA

#### UNSTRUCTURED DATA

- Complete factual event data relating to perils
- Early warning of large scale shocks
- Reduced downside volatility

80% of all data is in an unstructured format; failure to use this data results in reliance on commoditised information and missed opportunities



## **Cytora Solution**







# **Cytora Data Advantage During Ukraine Crisis**

The Cytora platform identified unrest in the East of Ukraine weeks before mainstream media and other providers.







## **Event Detection Across Different Threat Classes**

Open Source Intelligence contains a huge amount of discreet events that relate to political risk every day.

Crime **Political Violence STANDARD** Digital AMNEST) BBC INTERNATIONAL **REPORTEI** SANS FRONTIE DAILY CHINADAILY Europe NATION **DailyNews** Brazil Sur-Conflict and War AL-ANB. Terrorism LA PRESSE BRAZILIANNEWS Kuwait de Times Google





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### China-Japan Conflict Scenario

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#### **Prof. Danny Ralph**

Academic Director Cambridge Centre for Risk Studies

## **Disclaimer**

- These are hypothetical scenarios developed as stress tests for risk management purposes
- They are not predictions
- The Centre for Risk Studies develops hypothetical scenarios for use in improving business resilience to shocks
- These are contingency scenarios used for 'what-if' studies and do not constitute forecasts of what is likely to happen





Geopolitical Conflict

#### Stress Test Scenario Selection China-Japan Conflict

Exploring the issues of business risk from geopolitical conflicts

- Conflict between Japan and China over disputed marine territories
- Ensuing military action in land territories and naval engagements
  - Commercial targets are damaged including property, civilian aircraft, ships
  - Human casualties of expat executives
- Shipping lanes are closed and air traffic is restricted for an extended period
- Exports & supply chains disrupted
- Significant disruption to world trade
- Major stock market downturns





#### Tensions grow in East China Sea

Near miss near disputed islands prompts another diplomatic row

September 5

Tokyo, Japan (2103 GMT – 0503 JST) -Tensions between China and Japan grew yesterday following a skirmish at sea between Japanese fisherman and China's People's Liberation Army Navy.

Set against a backdrop of military molecnisation increased Chinese nationalism, the legacy of the second Sino-Japanese war, and an extreme tritrist for natural resources, China and



Japanese and Chinese coast guards were quickly on the scene but did not engage one another

recent clash saw Japanese

#### **China-Japan Conflict: Scenario Phases over 9 months**



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### **China-Japan Conflict Scenario Zones**



#### **Insurance Losses**



#### Life, Health & Worker's Comp

- 100,000 people killed
- 750,000 people injured
  - 75% in China, 25% in Japan

#### Civilian deaths & injuries military action

- Factories and office buildings targeted
- Civilian deaths & injuries from riots and hostage taking by crowds
- Commercial airliner shot down
  - 350 passengers and crew killed
- Exodus of Westerners
  - Travel insurance repatriation
  - Stress-related health claims



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#### Property losses:

- 450,000 properties damaged
- Corporations suffer badly
- Business interruption from power and utility outages
- Evacuation of personnel
- IT infrastructure damaged in cyber attacks
- \$120 Bn damage bill



#### **Underwriting Loss: Clash Assessment** Insurance Claims Across Multiple Lines of Business

Claims related to Geopolitical Conflict on insurance exposure in Japan & China

Class	Line of Business		Class	Line of Business	
Prope	rty		Marine	e & Specie	
	Personal Lines/Homeowner	4		Cargo	5
	Personal Contents	4		Marine Hull	5
	Commercial Combined	5		Marine Liability	3
	<b>Construction &amp; Engineering</b>	3		Specie	4
	Commercial Facultative	5	Aerosp	pace	
	Binding Authorities	3		Airline	5
Casual	ty			Airport	4
	Workers Compensation	5		Aviation Products	3
	Directors & Officers	4		General Aviation	2
	Financial Lines	4		Space	4
	General Liability	4	Energy	,	
	Healthcare Liability	5		Downstream	1
	Professional Lines	4		Energy Liability	4
	Professional Liability	3		Onshore Energy & Power	5
Auto				Upstream	3
	Personal Lines	4	Specia	lty	
	Commercial & Fleet	5		Accident & Health	5
				Aquaculture insurance	1
				Contingency - film & event	1
				Equine insurance	1
				Excess & Surplus	0
				Life Insurance	4
lm	pact on Insurance Claims			Livestock	3
Decrea	ase Increas	e			

5

-3 -2 -1 0 1 2 3

Class	Line of Business						
Life &	Health						
	Life Insurance	5					
	Health Insurance Income Protection						
	Income Protection Death & Disability						
	Death & Disability						
	Hospital Cover	5					
Pensio	n and Annuities						
	Standard Annuities	0					
	Variable Annuities	0					
	Enhanced Annuities	0					
	Life Settlements	0					
War &	Political Risk						
	Kidnap & Ransom	0					
	Political Risk	5					
	Political Violence & Terrorism	0					
	Product Recall	0					
	Trade Credit	3					
Agricu	Iture						
	Multi-peril crop	3					
	Crop hail	0					
	Livestock	4					
	Forestry	0					
	Agriculture	0					

## Marine, Aviation and Space Losses



## Marine

- The 'Elfrieda Smirk' lost at sea
- Ultra Large Container Vessel
- 15,000 containers
- No definitive attribution for sinking



# Aviation

- Loss of a commercial 747 aircraft, passengers and crew
- No air force admits shooting it down



# Space

 Japanese commercial satellites lost, suspected due to military action

## **Insurance Products Covering Supply Chain Risk**

#### Business Interruption (BI) insurance

 Covers economic losses and increased cost of operation resulting from *physical damage* to the insured's business operations caused by a specified peril at the *insured's own premises*

#### Contingent Business Interruption (CBI) insurance

- Covers economic losses and increased cost of operations as a result of physical damage caused by a *specified peril* to property at the premises of a (often *named*) *supplier*, customer or business partner.
- Similar coverage may be provided under a Physical Damage/BI policy with a customer and/or supplier extension.

#### Supply Chain (SC) insurance

- Covers economic losses and increased cost of operations caused by any *specified event* or circumstance that results in disruption to the normal business operations of the insured
- Does not usually cover 'all risks', but may exclude such perils as war, terrorism, nuclear, regional pandemic, and quality related issues (including product recall)



## **Insurance Claims Surprises...**

#### Political interference in insurance claims settlement

- Chinese government declares 'war' exclusion clauses in Western insurance policies invalid
  - A condition of doing future insurance business in China is that Western insurers pay for losses inflicted, to assist with the reconstruction of economy
  - Precedents: US government pressure on insurers to settle claims in "Hurricane" Sandy; Deepwater Horizon compensation

#### **Claims from businesses elsewhere**

- Contingent business interruption claims from supply chain failures
- Supply chain insurance
- Event cancellation in US
- Airport business coverages

#### **Claims from surprising sources**

Stress-related illnesses in US expatriate employees evacuated from war theatre



## **Macroeconomics of War**

- Govt. expenditure ①
- Public debt & taxation û
- Inward FDI
- Currency I (devaluation)
- Inflation ①
- Energy price û / volatility û
- China-Japan Conflict Scenario:
- Exports 44
- Imports 44
- Industry 4 due to destruction of capital assets



#### **Global Trade: Imports and Export Trade between Countries**



#### **Geopolitical Conflict: Global GDP Impact of Scenario Variants**



#### **Geopolitical Conflict Scenario Variants**

S1: 9 month duration of conflict S2: 2 year duration of conflict X1: 5 year duration of conflict





#### Geopolitical Conflict: Regional GDP Impact of Variants





## **Standard Investment Portfolio**

Portfolio structure									
	USD	GBP	Euro	Yen	Other	Total			
Government med/long	8%	7%	5%	2%	2%	24%			
Government short	6%	5%	4%	2%	3%	20%			
Cash	2%	1%	1%		1%	5%			
AAA short	2%	2%	2%	1%	1%	8%			
AAA med/long	4%	3%	1%	1%	1%	10%			
AA short	1%	1%	1%			3%			
AA med/long	2%	1%	1%		2%	6%			
A short						0%			
A med/long	2%	2%	2%	2%		8%			
BBB and lower	2%	2%	1%		1%	6%			
Equities etc	2%	2%	2%		4%	10%			
Total	31%	26%	20%	8%	15%				

Financial portfolio, largely fixed income

- Proxy for mid sized insurance underwriter
- Gov & commercial bonds \$ US, £ GB, € Euros, ¥ Yen
- Some cash, equities

#### Technical points, eg,

- Taylor rule derives interest rate from inflation rate
- Estimate default rate on corporate bonds from credit spread







## **Investment Portfolio Losses**

Loss per \$100	US	UK	Euro	Japan
Equities	-3	-17	-10	-7
Government 10-yr Bonds	-1	-5	-3.5	-1.7
A-AAA Grade Bonds	-1	-5	-3.5	-1.7
B Grade Bonds	-6.2	-9.5	-8.0	-7.5
Standard Portfolio (Mix of assets in that market)	-1.2	-4.1	-2.5	-1.3



## What Can You Do?

# Businesses and organisations

- Workforce protection
- Contingency plans, rapid recovery, choke points
- Counterparty and financial challenges

## Insurance companies

- Reliance on exclusion clauses, limit controls, reinsurance
- Property, business interruption, workers compensation

### Investment managers

- Significant impact on financial markets 'flight to quality'
- Investors can hedge and offset potential losses
- Bankruptcy, contagion in financial system



## How to Minimise Your Exposure?

# Prediction and preparedness

- Rising tensions can be monitored for future conflict
- Economic & political indicators
- social indicators and social media

# Short term versus long term

- Implement contingency plans for short term disruption
  - Alternative suppliers, redeployment of staff, portfolios, contracts
- Identify regions of long term instability
  - Strategic deployment of resources, business structure

# False positives

- Balancing precautionary principle with false alarms
  - o Rising tensions do not always result in catastrophe



## **Final Thoughts on Geopolitical Conflict**

- Geopolitical Conflict is a significant systemic risk
- Triggers mask underlying political, economic and national security issues
- Spillover and contagion is possible in
  - Global trade
  - Financial markets
- Monitor closely, but also have contingency plans

### Total GDP@Risk of between \$US 15-35 trillion



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# **Towards a Multi-Threat Perspective**

**4 Stress Test Scenarios** 

Centre for Risk Studies



#### **Professor Danny Ralph**

Academic Director Cambridge Centre for Risk Studies

#### We've Presented Four Scenarios of Key Threats



Cyber Catastrophe Stress Test Scenario



**Pandemic** 

Stress Test Scenario



**Geopolitical Conflict** 

Stress Test Scenario



Social Unrest Stress Test Scenario

Reports now published on: <u>CambridgeRiskFramework.com</u>



#### **Global GDP@Risk from Scenarios**





# **Comparing Four Scenarios: Impact Magnitude**

US\$ Trillion GDP@Risk	S1	<b>S</b> 2	X1
Geopolitical Conflict	17	27	34
	9 month conflict	2 year conflict	5 year conflict
Pandemic Sao Paolo Virus	7	10	23
	43% infection	Poor response	Poor response + Vaccine failure
Cyber Catastrophe	3	5	11
	Standard scenario	More damage + liability	Extreme damage & liability
Social Unrest Millonnial Unrising	2	5	8
	Europe & US Only	Europe, US + BRICS	Europe, US, BRICS + ME
2007-2012 Great Financial Crisis	18		
Great Financial Crisis at 2014	20		



#### **Loss Estimation to Multiple Lines of Insurance Business**

	Threat	Variant	GDP@Risk	Asset Loss (P&L \$m)		nsurance U	<b>N Loss</b> (Indu	ustry Total \$E	3n)
Scenaric ID	)		Macroeconomic Impact	on Standard Investment Portfolio	Life	Health Inc. Personal Accident	Property Inc. Marine, Specialty, etc.	<b>Casualty</b> Inc. Liability & Workers Comp	Total
CY S1	Cyber Catastrophe	S1	4.5	-35.8	0	0	5	40	45
CY S2	Cyber Catastrophe	S2	7.4	-37.5	0	0	8	60	68
CY S3	Cyber Catastrophe	S3	8.8	-40.2	0	0	10	75	85
CY X1	Cyber Catastrophe	X1	15.0	-44.6	0	0	18	100	118
IW S1	Geopolitical Conflict	S1	17.0	-45.3	5	14	40	150	209
IW S2	Geopolitical Conflict	S2	27.0	-90.9	12	35	90	180	316
IW X1	Geopolitical Conflict	X1	34.0	-106.1	23	69	150	220	463
HE S1	Human Pandemic	S1	7.0	-103.9	99	93	5	20	217
HE S2	Human Pandemic	S2	10.0	-236.1	113	122	8	30	273
HE S3	Human Pandemic	S3	14.0	-258.5	119	128	10	60	317
HE X1	Human Pandemic	X1	23.0	-322.2	121	144	15	120	400
SU S1	Social Unrest	S1	1.6	-3.0	1	2	20	35	58
SU S2	Social Unrest	S2	5.3	-15.1	3	5	35	50	93
SU X1	Social Unrest	X1	8.6	-35.4	9	25	45	90	169

Class	Line of Business							
Prope	rty							
	Personal Lines/Homeowner							
	Personal Contents							
	Commercial Combined	1						
	<b>Construction &amp; Engineering</b>	2						
	Commercial Facultative	1						
	Binding Authorities	0						
Casual	ty							
	Workers Compensation							
	Directors & Officers	3						
	Financial Lines	4						
	General Liability	3						
	Healthcare Liability	5						
	Professional Lines	1						
	Professional Liability							
Auto								
	Personal Lines	-1						
	Commercial & Fleet	-2						

Class	Line of Business	
Marine	e & Specie	
	Cargo	0
	Marine Hull	0
	Marine Liability	1
	Specie	2
Aerosp	pace	
	Airline	3
	Airport	4
	Aviation Products	3
	General Aviation	2
	Space	0
Energy	1	
	Downstream	1
	Energy Liability	2
	Onshore Energy & Power	2
	Upstream	0
Specia	Ity	
	Accident & Health	4
	Aquaculture insurance	1
	Contingency - film & event	5
	Equine insurance	1
	Excess & Surplus	3
	Life Insurance	3
	Livestock	1

Class	Line of Business	
Life &	Health	
	Life Insurance	3
	Health Insurance	5
	Income Protection	4
	Death & Disability	5
	Hospital Cover	5
Pensio	on and Annuities	
	Standard Annuities	-2
	Variable Annuities	-2
	Enhanced Annuities	-3
	Life Settlements	-3
War &	Political Risk	
	Kidnap & Ransom	0
	Political Risk	3
	Political Violence & Terrorism	0
	Product Recall	3
	Trade Credit	5
Agricu	lture	
	Multi-peril crop	1
	Crop hail	0
	Livestock	1
	Forestry	2
	Agriculture	1

	Impact on Insurance Claims											
D	ecr	eas	е							In	crea	ase
	-5	-4	-3	-2	-1	0	1	2	3	4	5	



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50

## **Asset and Underwriting Loss Correlation**



## CONCLUSION

# What is aim of Cambridge Risk Framework?

## Universality

- All threats = Taxonomy of threats ?
- Comparability
  - Likelihood = 1-in-100
- Quantification under various metrics
  - Direct impacts
    - o Human cost
    - Damage bill for industrial capacity & infrastructure
  - Systemic impacts
    - oGDP@Risk
    - o Financial markets



## **Future Meetings of Centre for Risk Studies**

#### 6<sup>th</sup> Annual Risk Summit

- 22 & 23 June 2015
- 'Risk Testing: Stressing the Boundaries'
- Online registration opening soon
- Future "London Risk Briefings"
  - April, May, July
  - To be announced soon

#### Topic-themed Seminars

- Financial Risk & Network Theory Sept 2015
- Others to be announced
- Cambridge CRO Council Discussions
- Aspen Crisis and Risk Forum













