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# Adapting to Extreme Events: Are We Ready?

## Lloyd's City Risk Index

### Presentation at AMIS Convention

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Lloyd's

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# GDP at risk in 279 cities = \$546 billion

Threat sources: Man-made (59%) vs Natural (41%)

## Categories

5

## Threats

22



### Geopolitics and Security

### Health and Humanity

### Natural Catastrophe and Climate

### Technology and Space

### Finance, Economics and Trade

Civil Conflict  
Interstate Conflict  
Social Unrest  
Terrorism

Human Pandemic  
Plant Epidemic

Drought  
Earthquake  
Flood  
Freeze  
Heatwave  
Temperate Windstorm  
Tropical Windstorm  
Tsunami  
Volcano

Cyber Attack  
Nuclear Accident  
Power Outage  
Solar Storm

Commodity Price Shock  
Market Crash  
Sovereign Default

# Global results - overview

City GDP (bn)  
**\$35,404.22**

GDP@Risk (bn)  
**\$546.50**

% of GDP@Risk  
**1.54%**

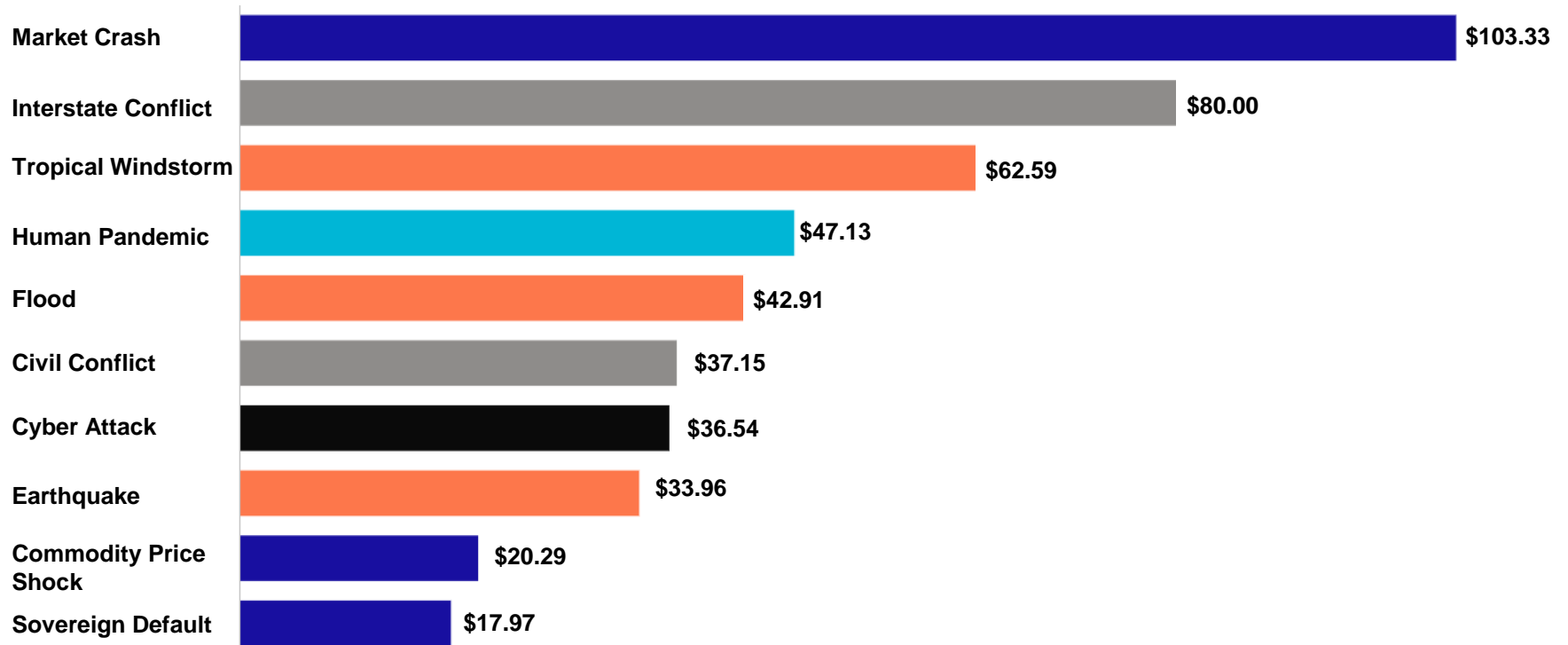
## Top 10 Cities Most At Risk

#	Global City	GDP@Risk (USD)	Biggest Risk
1	Tokyo	24.3bn	Interstate Conflict
2	New York	14.8bn	Market Crash
3	Manila	13.3bn	Tropical Windstorm
4	Taipei	12.9bn	Tropical Windstorm
5	Istanbul	12.7bn	Interstate Conflict
6	Osaka	12.4bn	Interstate Conflict
7	Los Angeles	11.6bn	Earthquake
8	Shanghai	8.5bn	Tropical Windstorm
9	London	8.4bn	Market Crash
10	Baghdad	7.9bn	Interstate Conflict

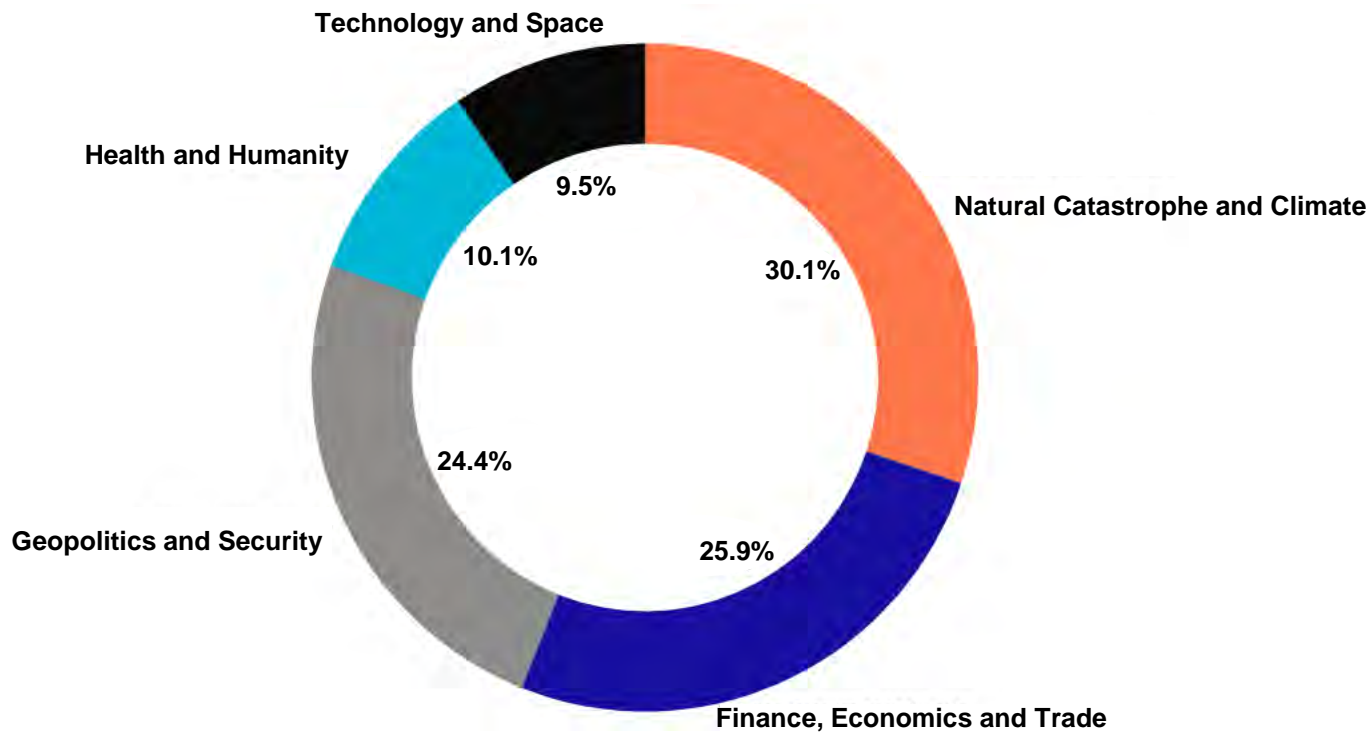
## Largest Threat Categories

Threat	GDP@Risk (USD)
<b>Market Crash</b>	<b>103.3bn</b>
Interstate Conflict	80bn
Tropical Windstorm	62.6bn
Human Pandemic	47.1bn
Flood	42.9bn
Civil Conflict	37.1bn
Cyber Attack	36.5bn
Earthquake	34bn
Commodity Price Shock	20.3bn
Sovereign Default	18bn
Terrorism	9.9bn
Drought	8.9bn
Power Outage	7.5bn
Plant Epidemic	7.9bn
Volcano	6.8bn
Solar Storm	6.6bn
Social Unrest	6.2bn
Temperate Windstorm	3.7bn
Freeze	3.1bn
Heatwave	1.8bn
Nuclear Accident	1.3bn
Tsunami	1bn

# Global results – top 10 threats

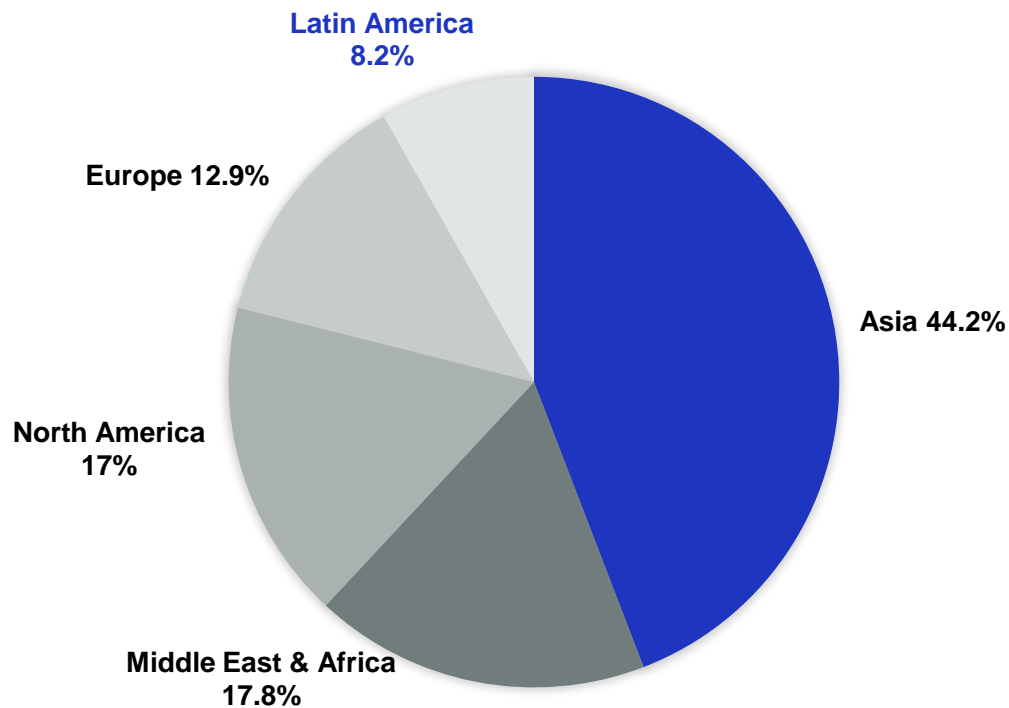


# Global results – by threat category

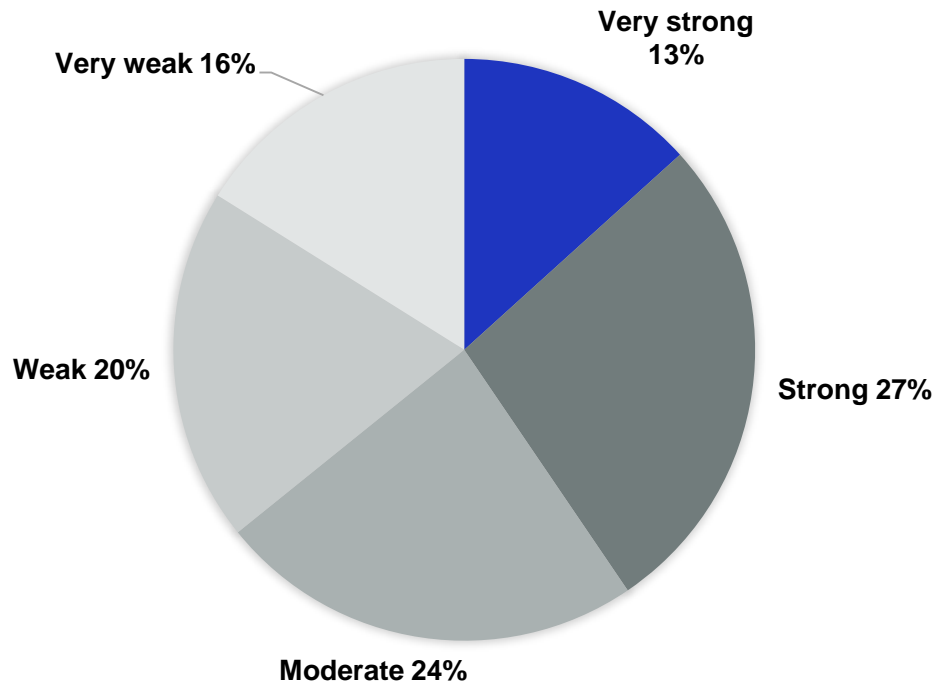


# Global results - regional breakdown

Percentage of global GDP@Risk

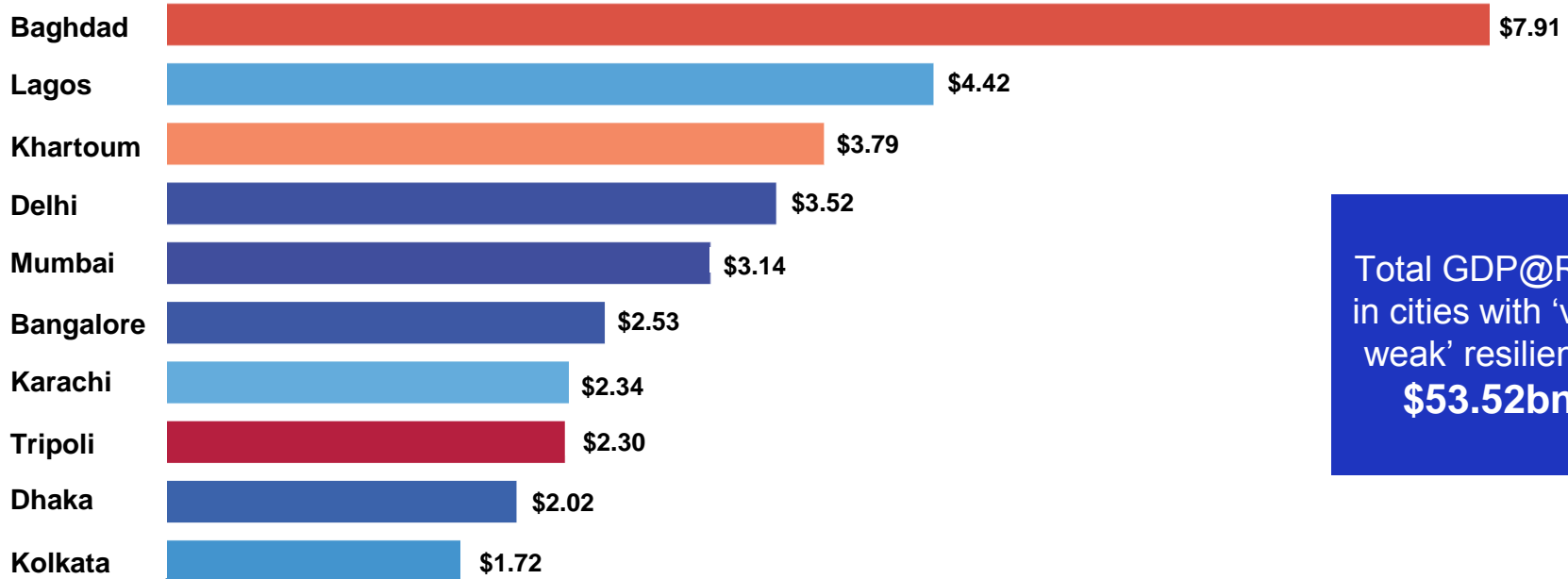


# Global results – resilience



# Resilience overview

Breakdown of cities with 'very weak' resilience

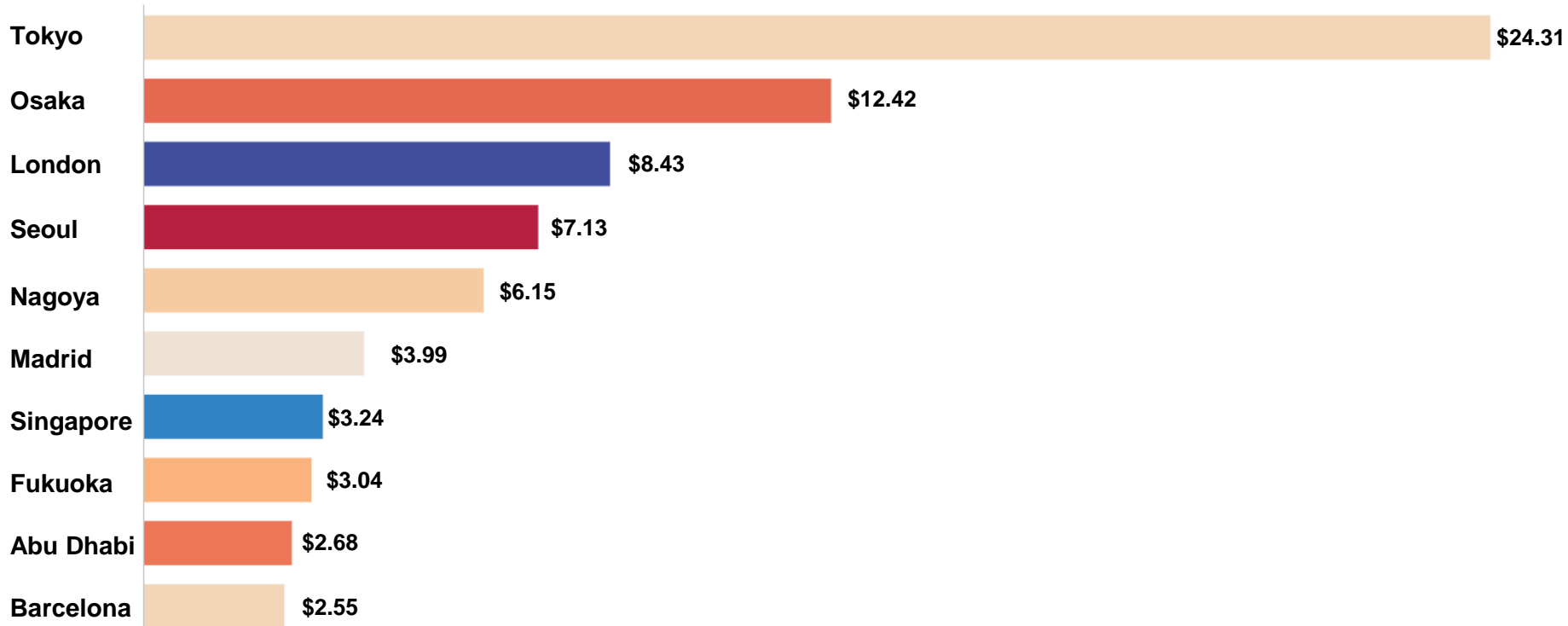


Total GDP@Risk  
in cities with 'very  
weak' resilience  
**\$53.52bn**



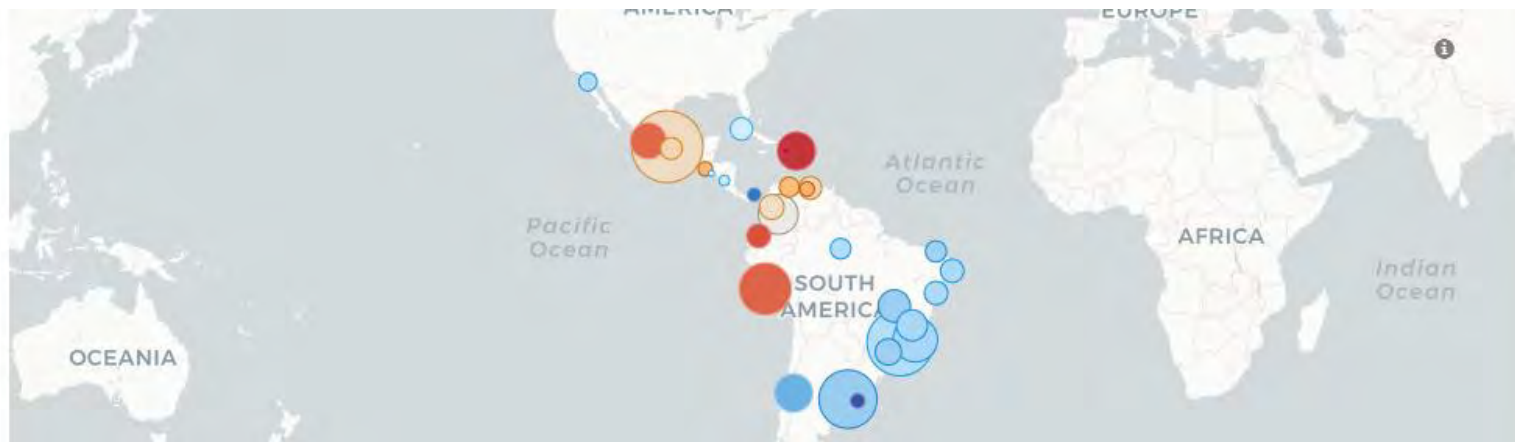
# Resilience overview

Breakdown of top 10 cities with 'very strong' resilience (GDP@Risk in bn USD)



# Latin America – overview

31 cities analyzed



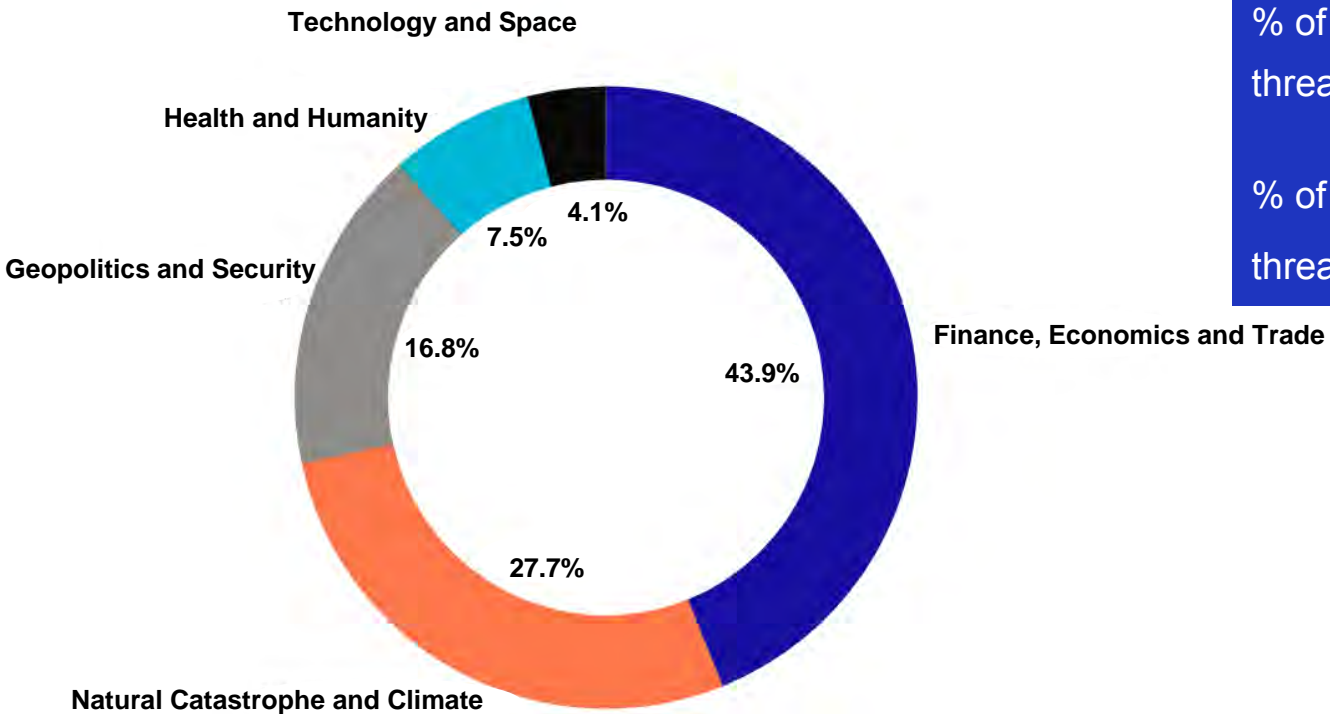
City GDP (bn)  
**\$1,900.29**

GDP@Risk (bn)  
**\$44.73**

% of global GDP@Risk  
**8.2%**

# Latin America – threat categories

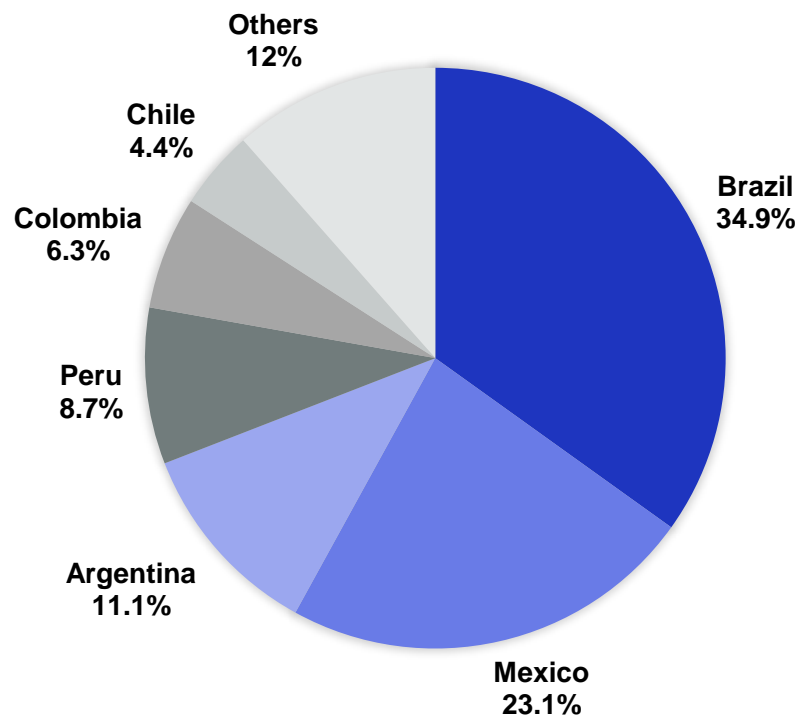
Percentage split



% of GDP@Risk from man-made threats **65%**

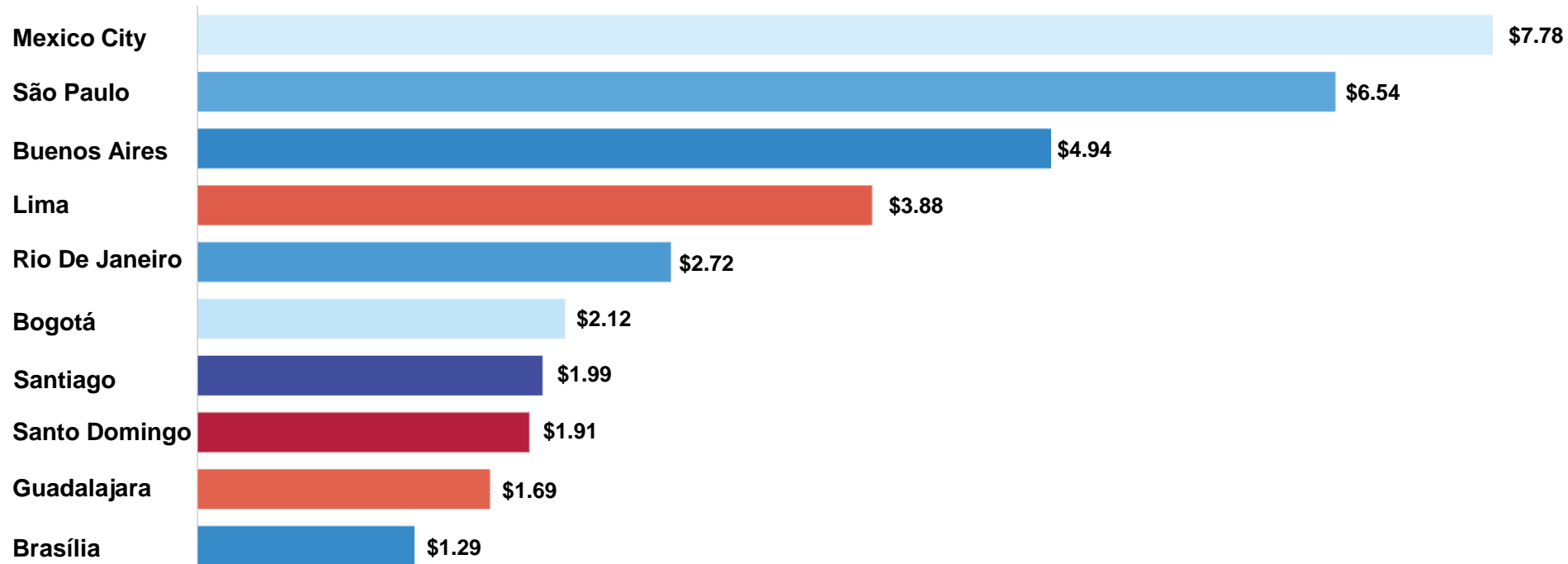
% of GDP@Risk from natural threats **35%**

# Latin America – country breakdown



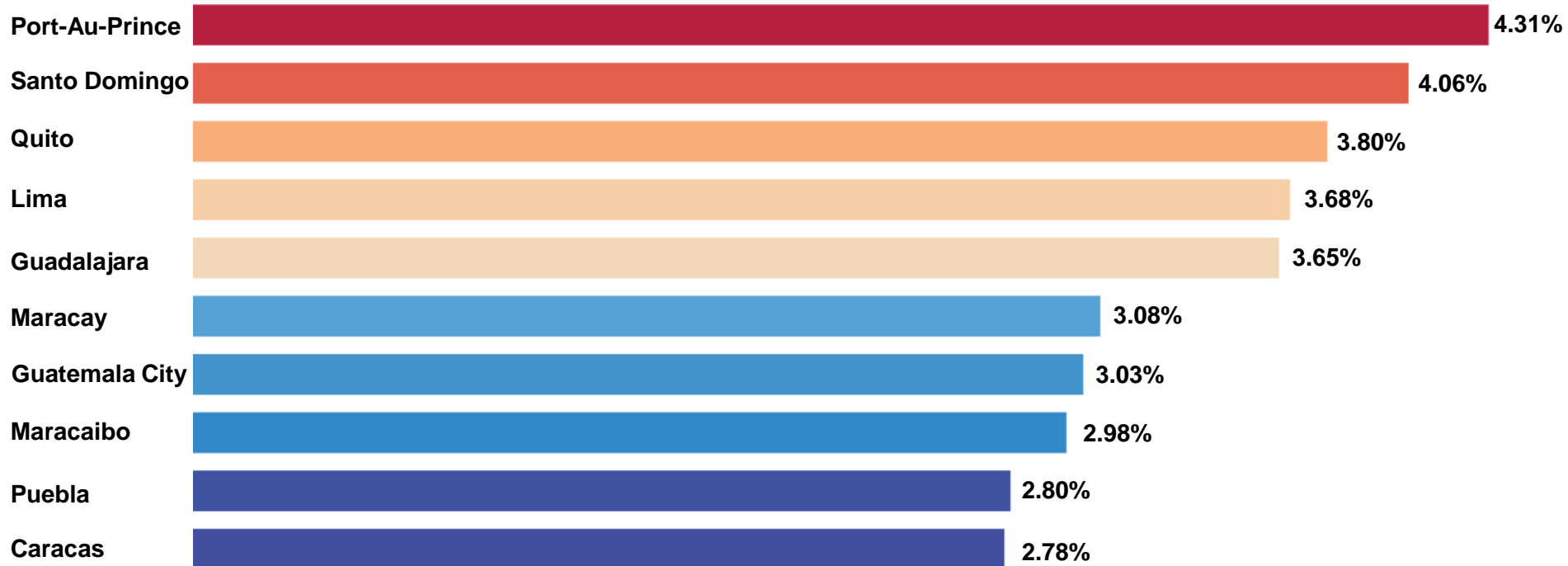
# Latin America – top 10 most exposed cities

By GDP@Risk

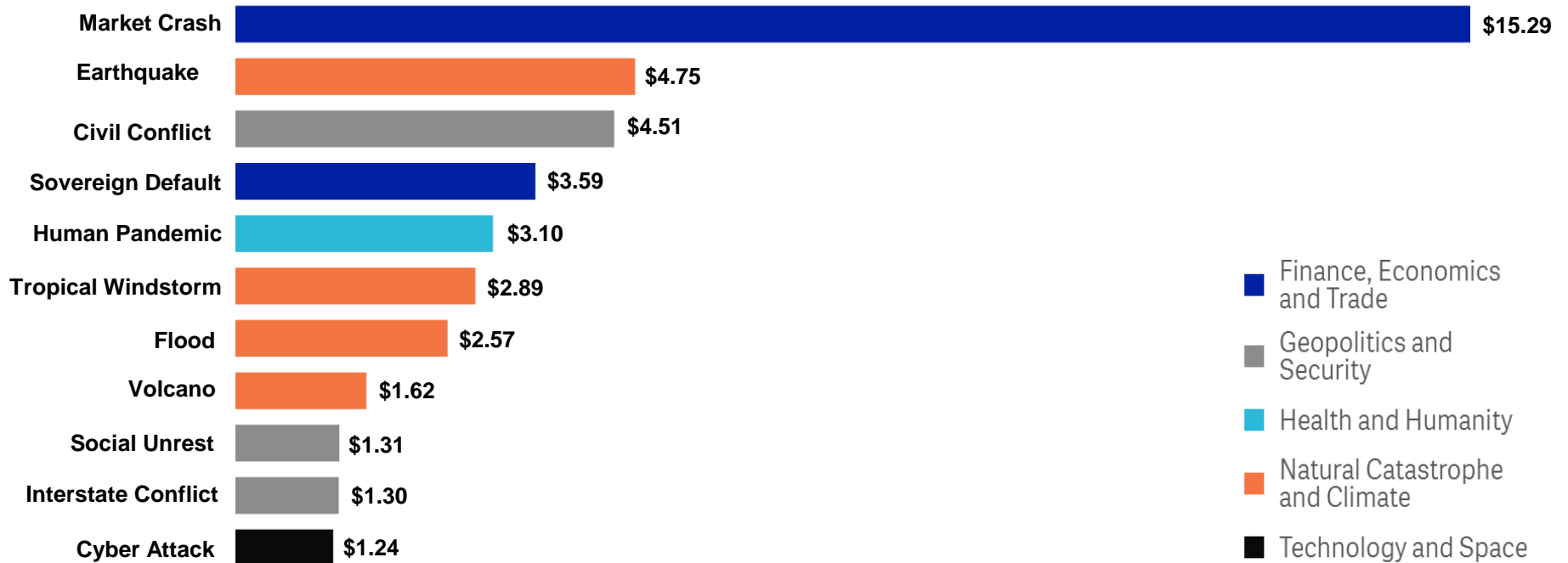


# Latin America – most exposed cities

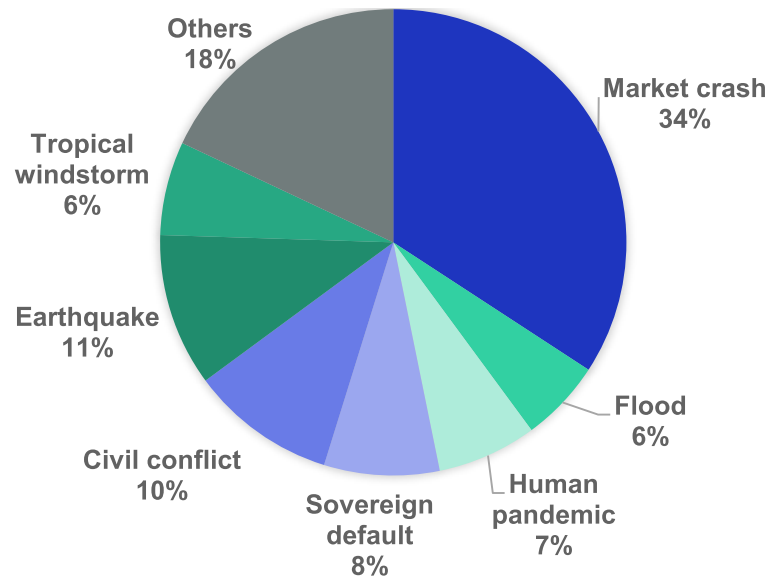
By % GDP@Risk



# Threats with a cost of more than \$1bn



# Threats and their impact on GDP

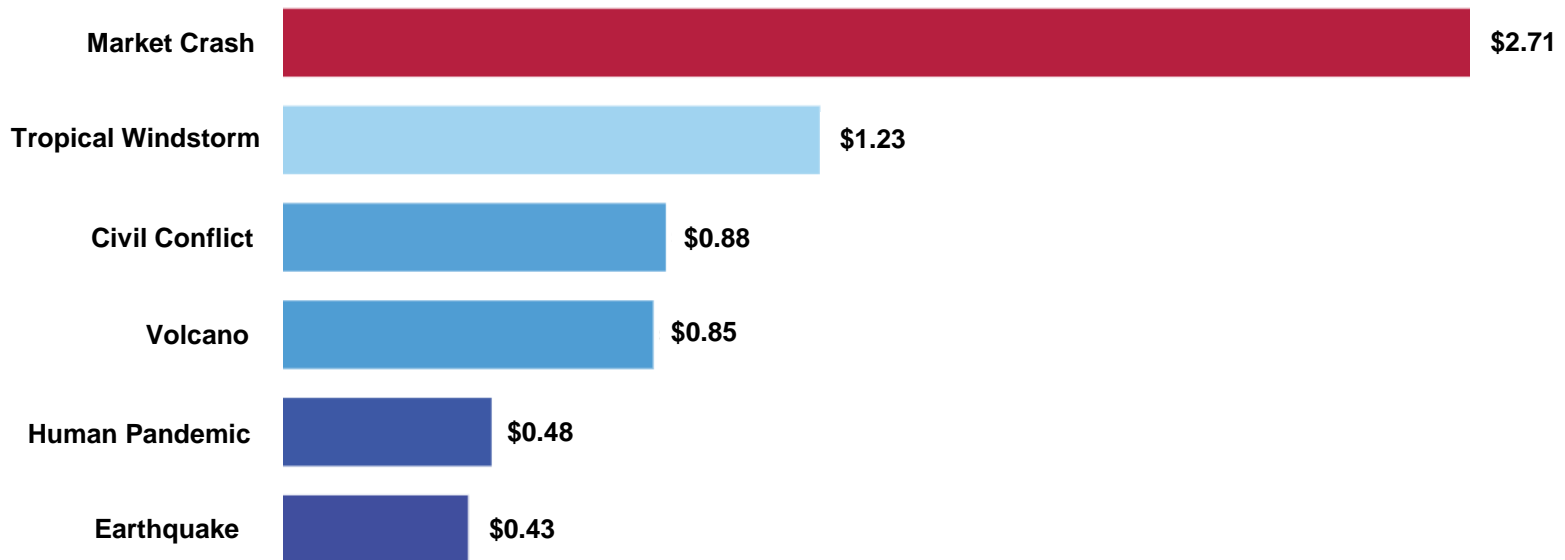




# Mexico City

Global risk ranking – 11<sup>th</sup>

City GDP (bn) <b>\$283.60</b>	GDP@Risk (bn) <b>\$7.78</b>	% of GDP@Risk <b>2.74%</b>	Resilience rating <b>Weak</b>
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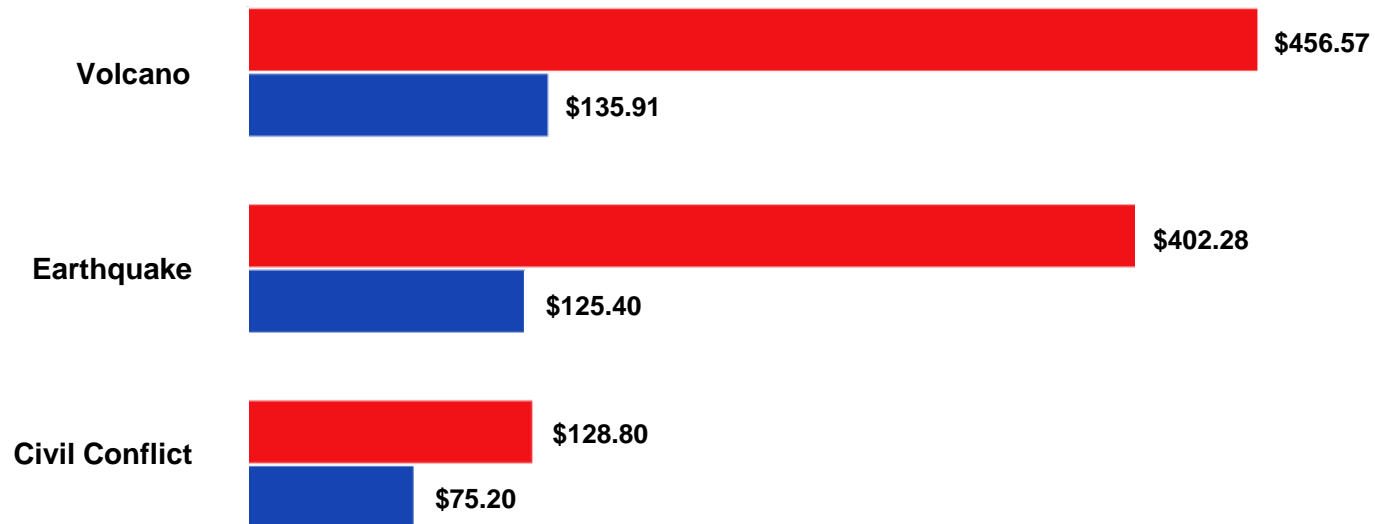


# Mexico City

## Costs of extreme or moderate sized events

### Scenario costs:

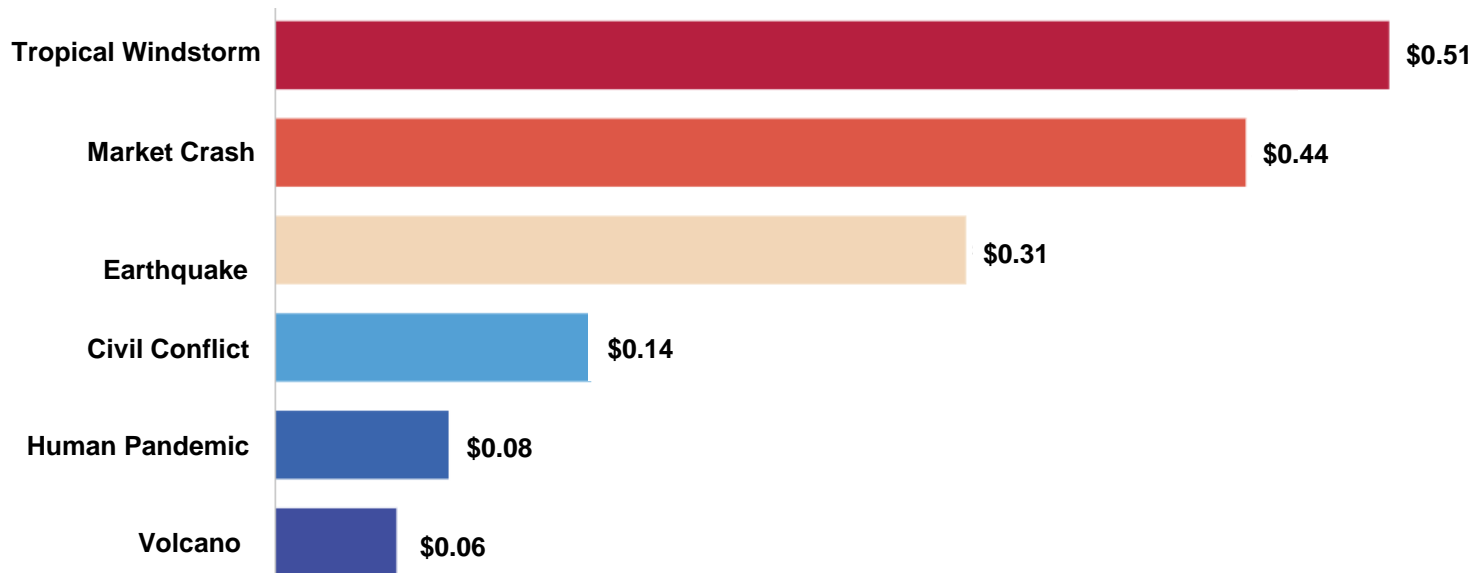
The amount of GDP that a city will lose if a specified threat scenario occurs



# Guadalajara

Global risk ranking – 89<sup>th</sup>

City GDP (bn) <b>\$46.20</b>	GDP@Risk (bn) <b>\$1.69</b>	% of GDP@Risk <b>%3.65</b>	Resilience rating <b>Weak</b>
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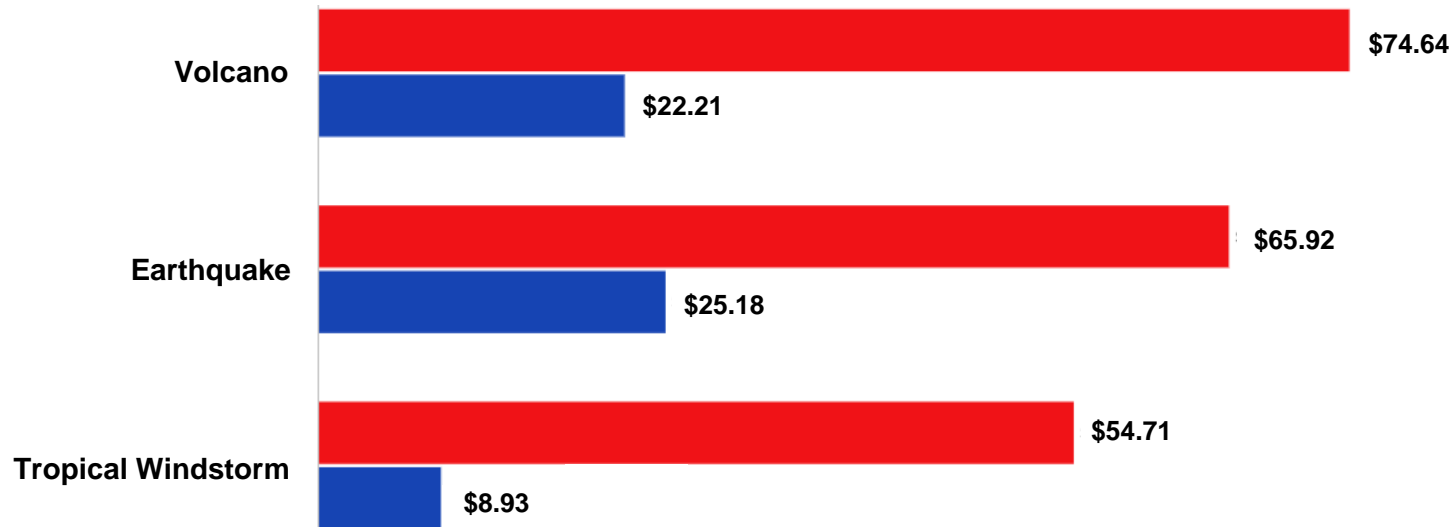


# Guadalajara

Costs of extreme or moderate sized events

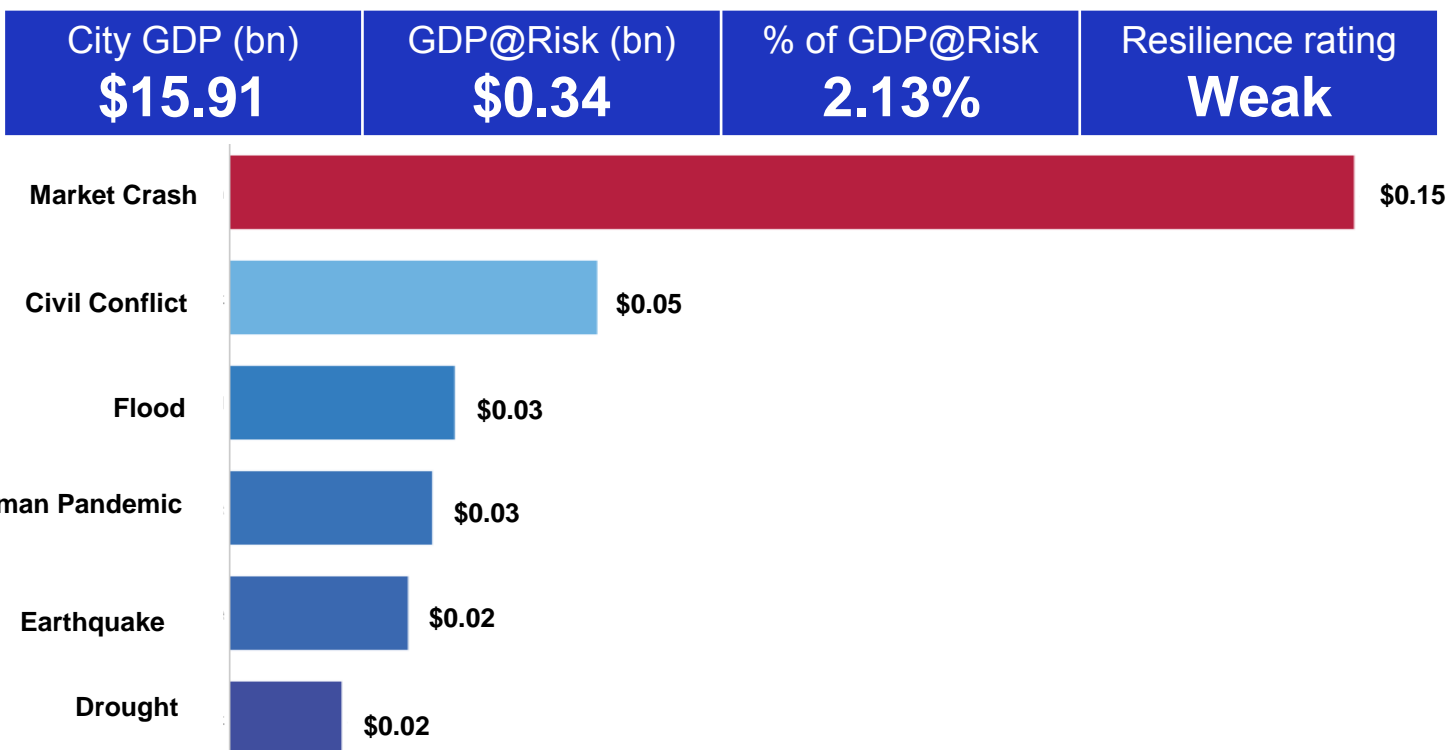
## Scenario costs:

The amount of GDP that a city will lose if a specified threat scenario occurs



# Tijuana

Global risk ranking – 227<sup>th</sup>

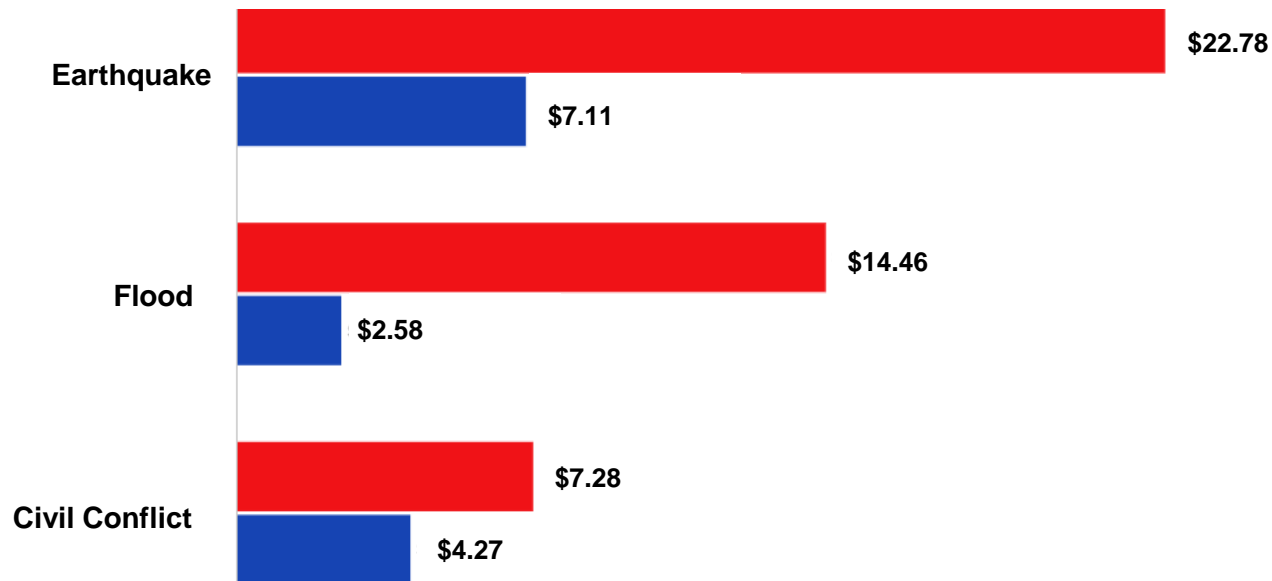


# Tijuana

## Costs of extreme or moderate sized events

### Scenario costs:

The amount of GDP that a city will lose if a specified threat scenario occurs



# GDP@Risk for US cities exceeds \$87 billion



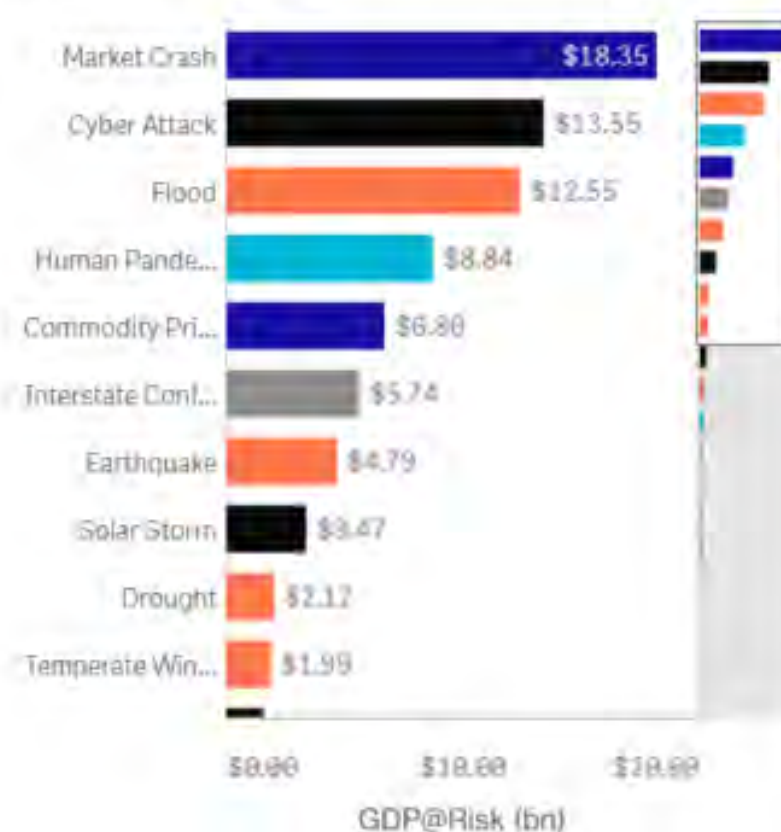
# Breakdown of GDP@Risk for top ten US cities

Market crash leads the list of most costly perils

GDP@Risk: Cities



GDP@Risk: Threat





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## Building resilience – next steps

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- Improved resilience could save \$73.4bn per year
- By providing cash injection following a catastrophic event, insurance is part of the solution
- Importance of pre-event risk mitigation
  - Public infrastructure, private risk control / prevention
- Insurers and brokers must invest in developing new products
- While no city can be completely risk free, the City Risk Index demonstrates the impact active risk management can have on threats to GDP and local, regional and national treasuries
- Insurance underpins economic growth, development and innovation

# Emerging risks reports



## Latest reports

- ▶ Future Cities – building infrastructure resilience
- ▶ Sharing risks, sharing rewards
- ▶ New realities – Risks in the virtual world
- ▶ Drones Take Flight – Key issues for insurance
- ▶ Business Blackout – The insurance implications of a cyber attack on the US power grid
- ▶ California Flood – Central Valley risk analysis

<https://www.lloyds.com/news-and-risk-insight/risk-reports>



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Thank you!





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