Cambridge Centre for Risk Studies

Advisory Board Research Showcase – 23 January 2018

Multi-Threat Risk Analysis and Insurance

Centre for **Risk Studies**

UNIVERSITY OF CAMBRIDGE
Judge Business School

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Insurance@Risk

- Key growth drivers and inhibitors for insurance uptake
- Country insurance penetration analysis
- Risk analysis at city level
  - Comparison of Cambridge Global Risk Index with city level insurance penetrations
- Insurance product alignment with risk for selected cities

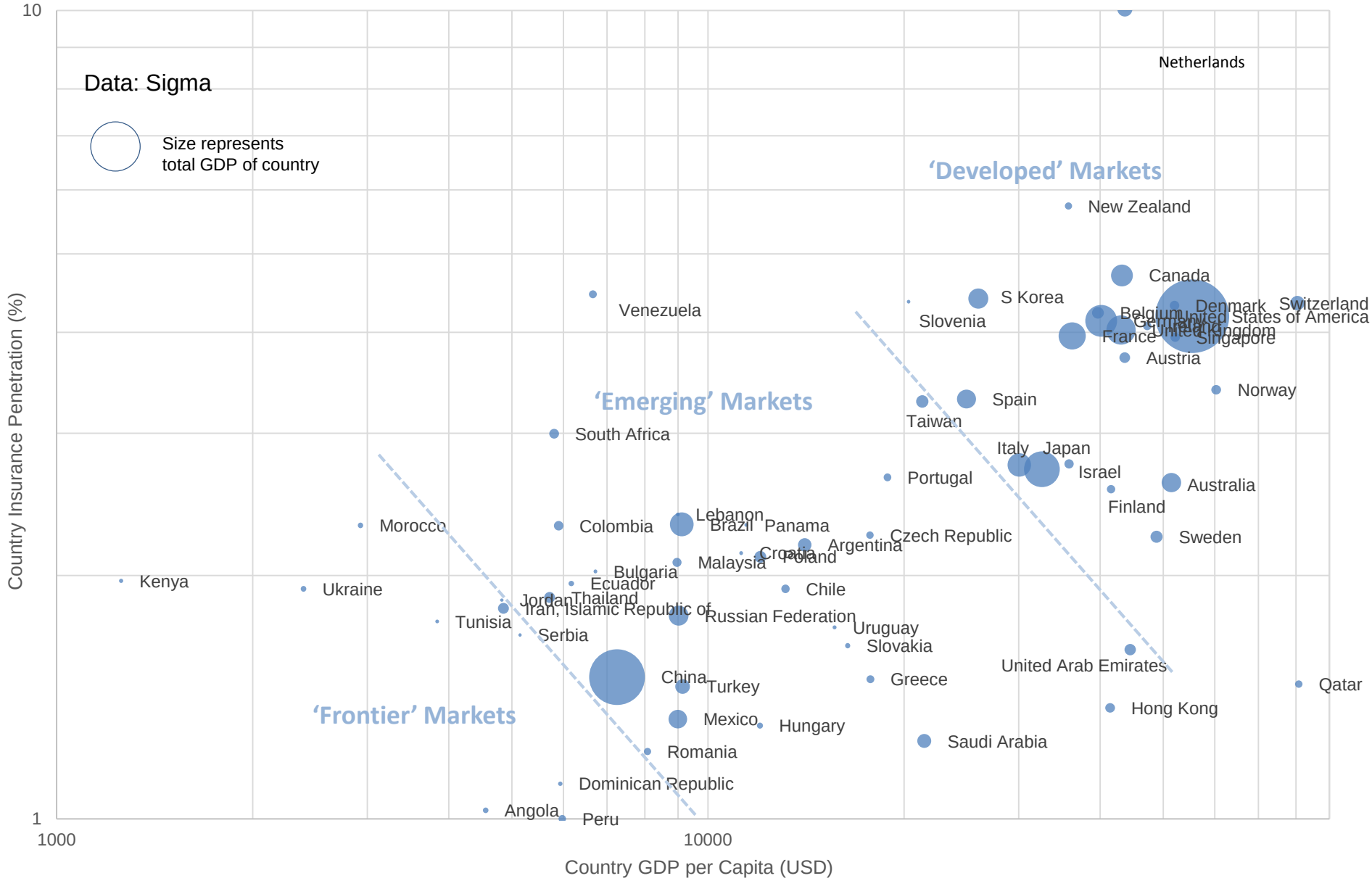
Key Growth Drivers of Insurance Uptake

- State and rate of economic development
  - Insurance premium and GDP are strongly correlated
- Growth of mid-tier companies in emerging markets
  - Fuelled by access to international finance and outsourcing patronage
- Catastrophe events with highly publicized large losses
  - Upticks in insurance take-up following major evets
- Trading relationships with US & Western counterparties
  - Investor accountability to international standards
- Regulatory change
  - Many more countries enacting new laws on anti-corruption, health & safety and investigation & prosecution
- Education and risk perception by senior management
  - Retail insurance broker markets claim credit for ‘educating merging markets in risk perception’
- Technology innovations
  - Mobile phone penetration, index-based agriculture insurance and disruptive technologies for risk transfer or mitigation

Key Inhibitors of Growth in Insurance Uptake

- State and rate of economic development
  - Global economic slowdown, commodity pricing slump, reduction in trading volumes
- Current insurance market size
  - Low premium volumes in emerging city markets inhibit global insurers from investing in servicing markets
  - 'Soft insurance market' curtails insurer investment in marginal business areas
- Price
  - Insurance still seen as an expensive risk mitigation solution by purchasers
- Complexity of traditional product structure
  - Complexity of products, segmentation for different exposures, coverages and terms and conditions is difficult for consumers to value
- Monetary policy
  - Low interest rate environment may encourage companies to fund risk out of borrowings

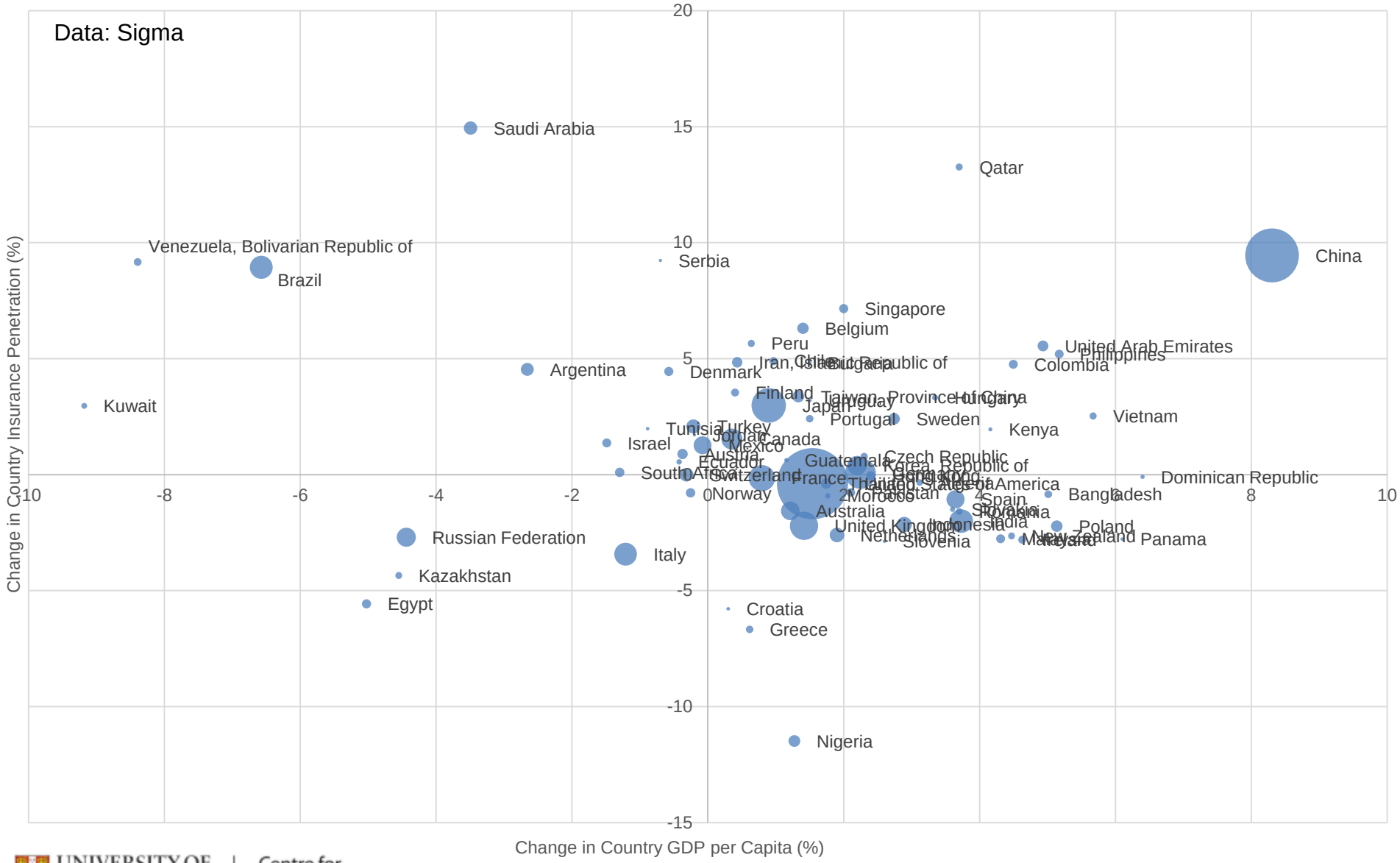
Country Insurance Penetration by GDP per Capita



Observations on GDP to Insurance Penetration

- Strong relationship between GDP per capita and insurance penetration
- "S-curve" relationship between GDP and insurance penetration is well documented in literature
  - Our chart shows upper section of this S-curve as few very low income countries are represented
- Many individual country-specific factors provide variation to the overall GDP to insurance penetration relationship
  - Threat landscape, regulatory environment and cultural norms
  - Example: Netherlands

Country Insurance Penetration by Change in GDP per Capita



Analysis of Risk vs City Insurance Penetration

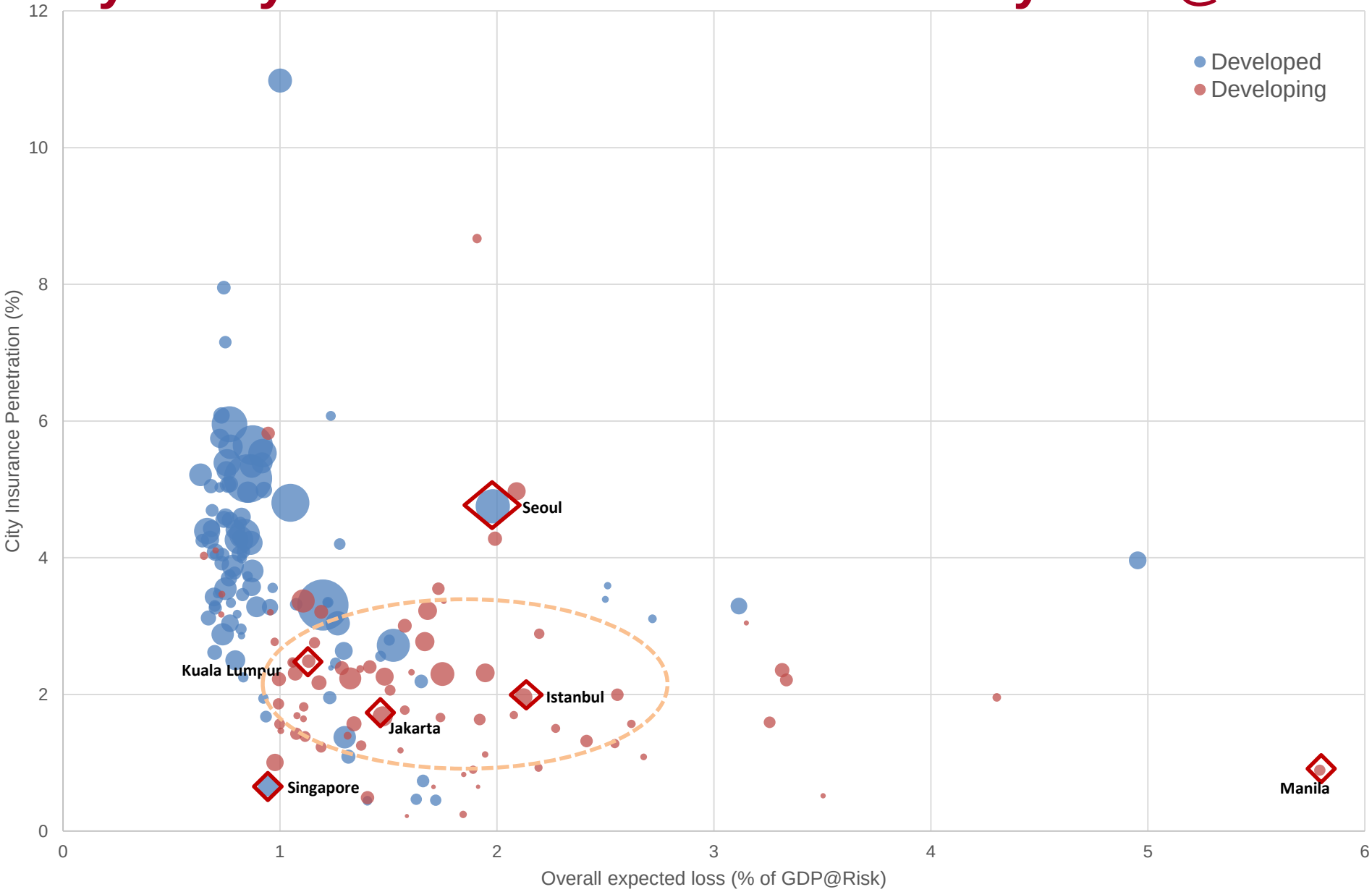
Sigma country insurance & economic data

2014 Global Metro Monitor city economic data

Estimated city insurance penetration & market growth data

City name	GDP per capita in 2014 ($US)	Estimated insurance penetration in 2014
Suzhou	29,739	5.0%
Wuxi	25,589	4.3%
Shenzhen	19,284	3.2%
Dalian	19,191	3.2%
Nanjing	17,971	3.0%
Changzhou	17,268	2.9%
Guangzhou	16,587	2.8%
Shenyang	14,875	2.5%
Zhenzhou	8,522	1.4%
Taiyuan	8,347	1.4%
Xian	8,274	1.4%
Kunming	7,671	1.3%
Xuzhou	7,493	1.3%
Harbin	7,355	1.2%
Chongqing	6,012	1.0%
Nanning	5,555	0.9%

City Analysis: Insurance Penetration by GDP@Risk



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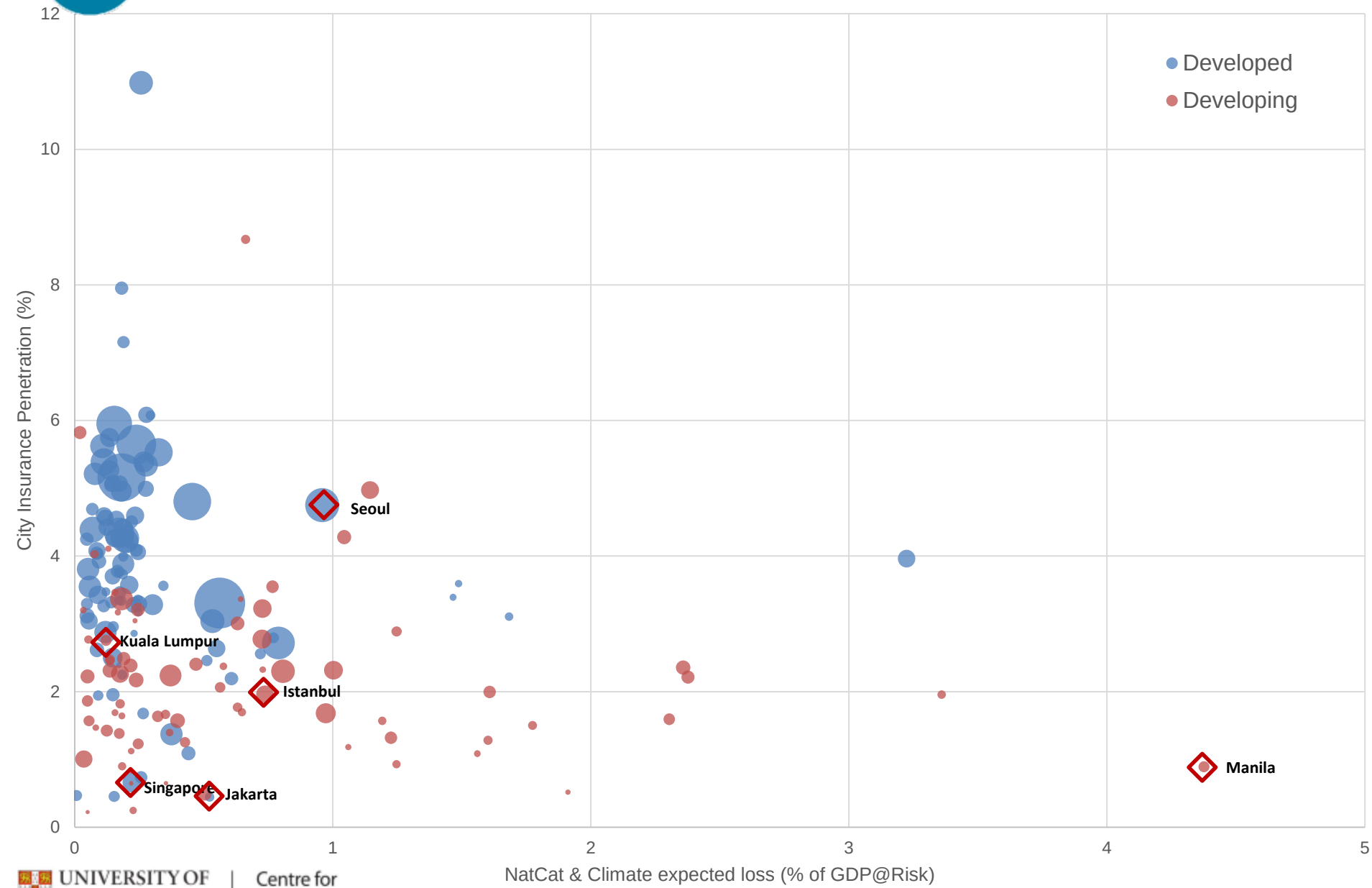
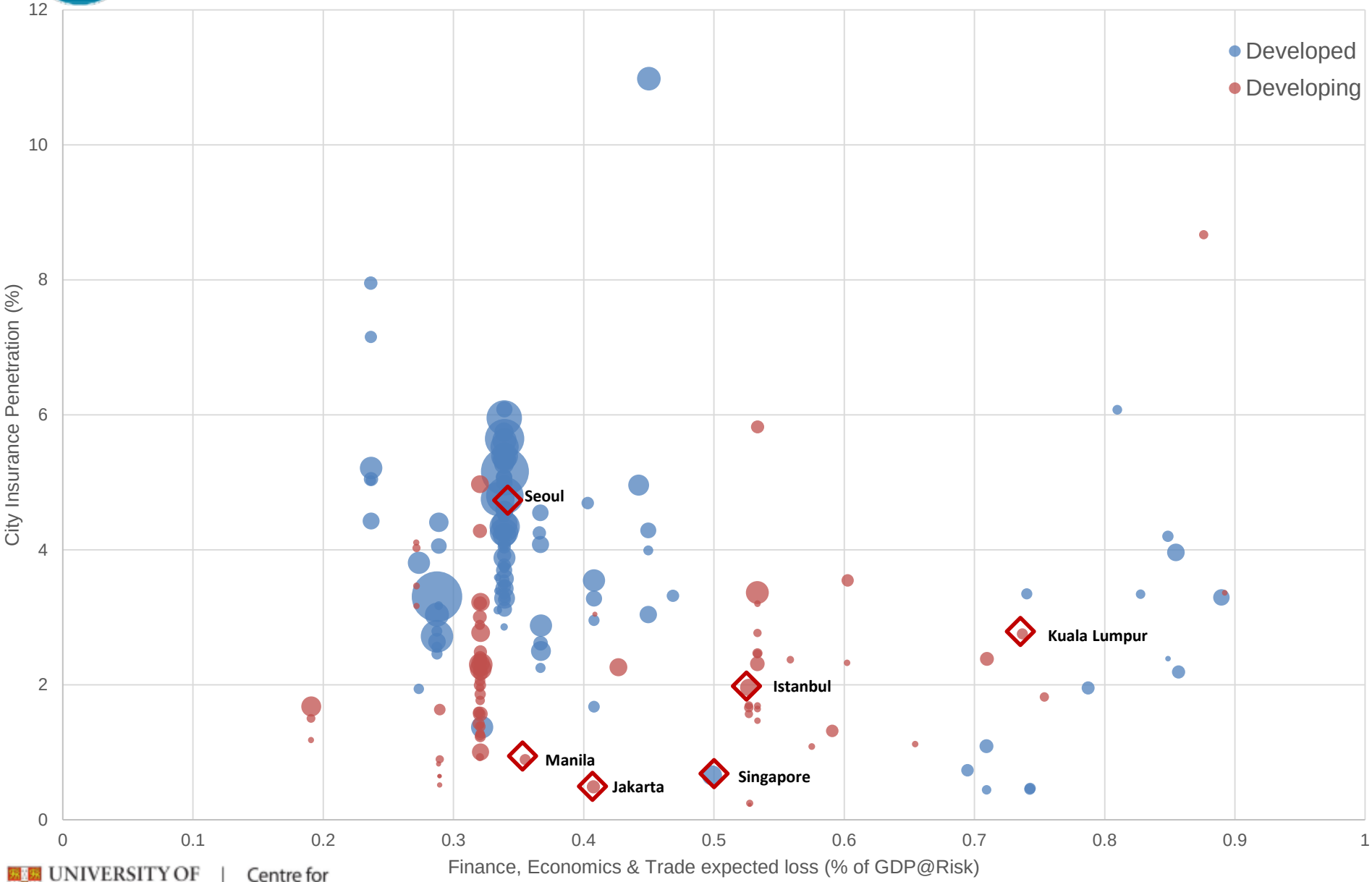
Cities by Natural Catastrophe and Climate Risk



Cities by Finance, Economics and Trade Risk



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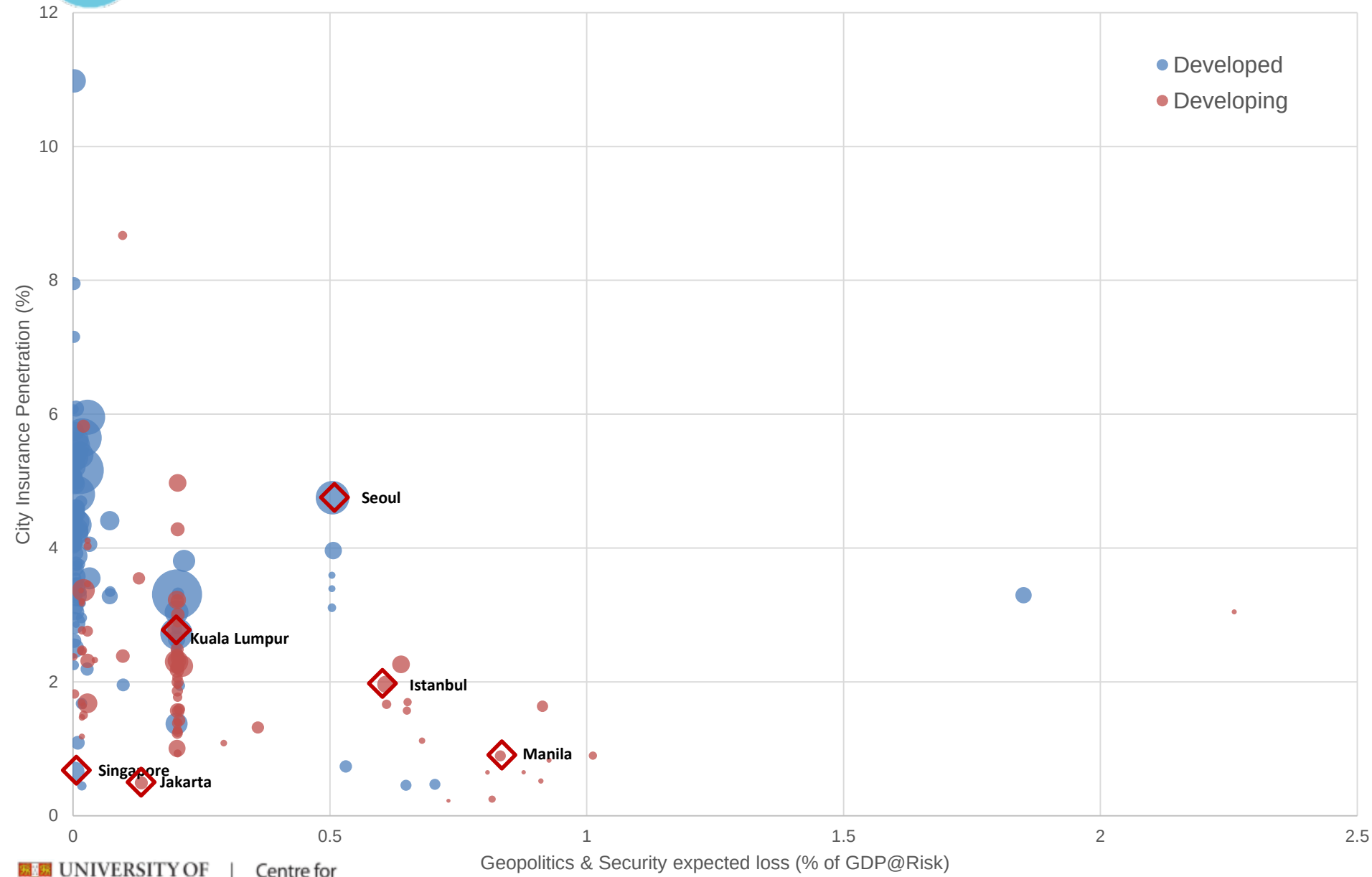
Cities by Geopolitics and Security Risk



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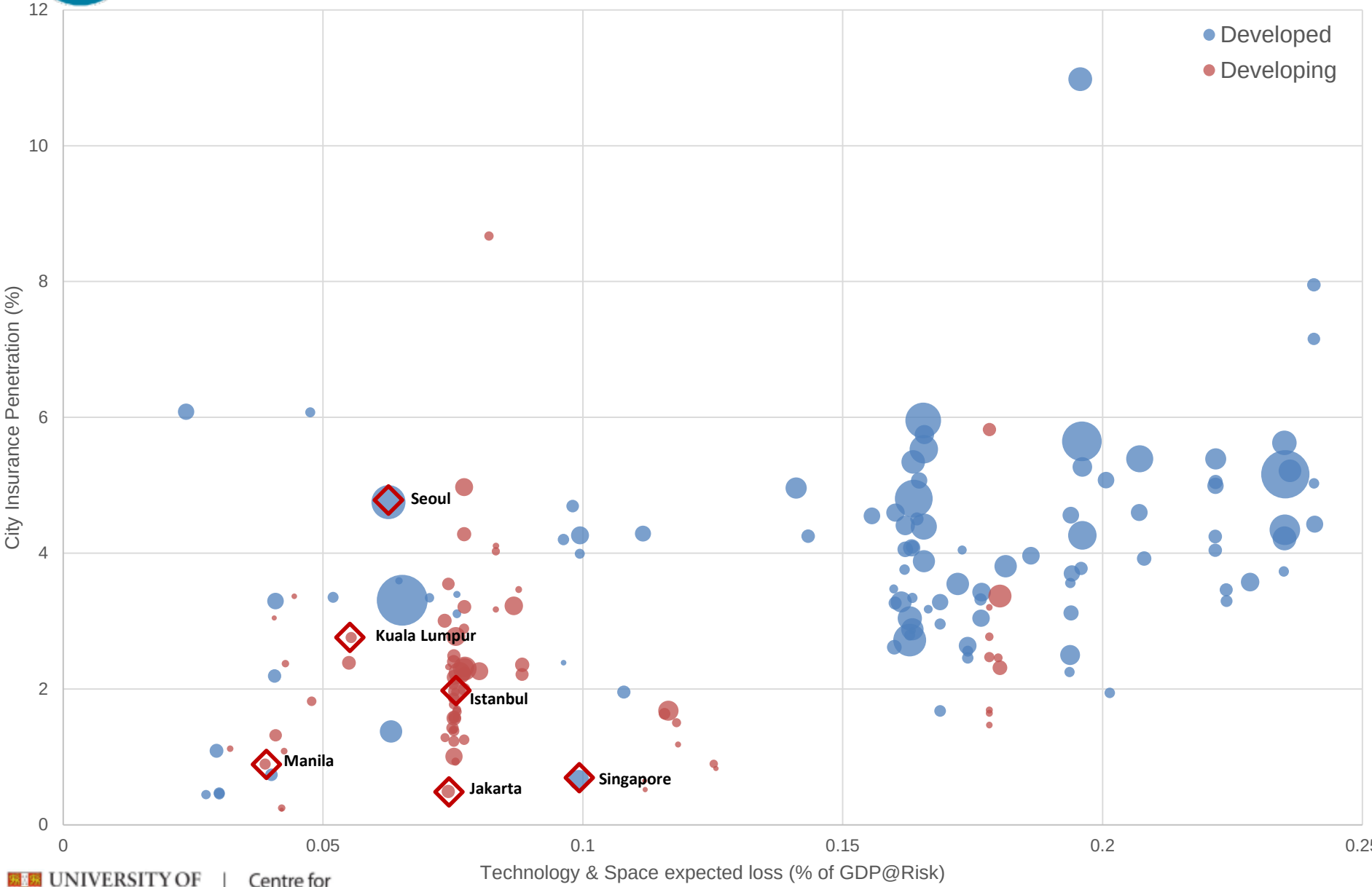
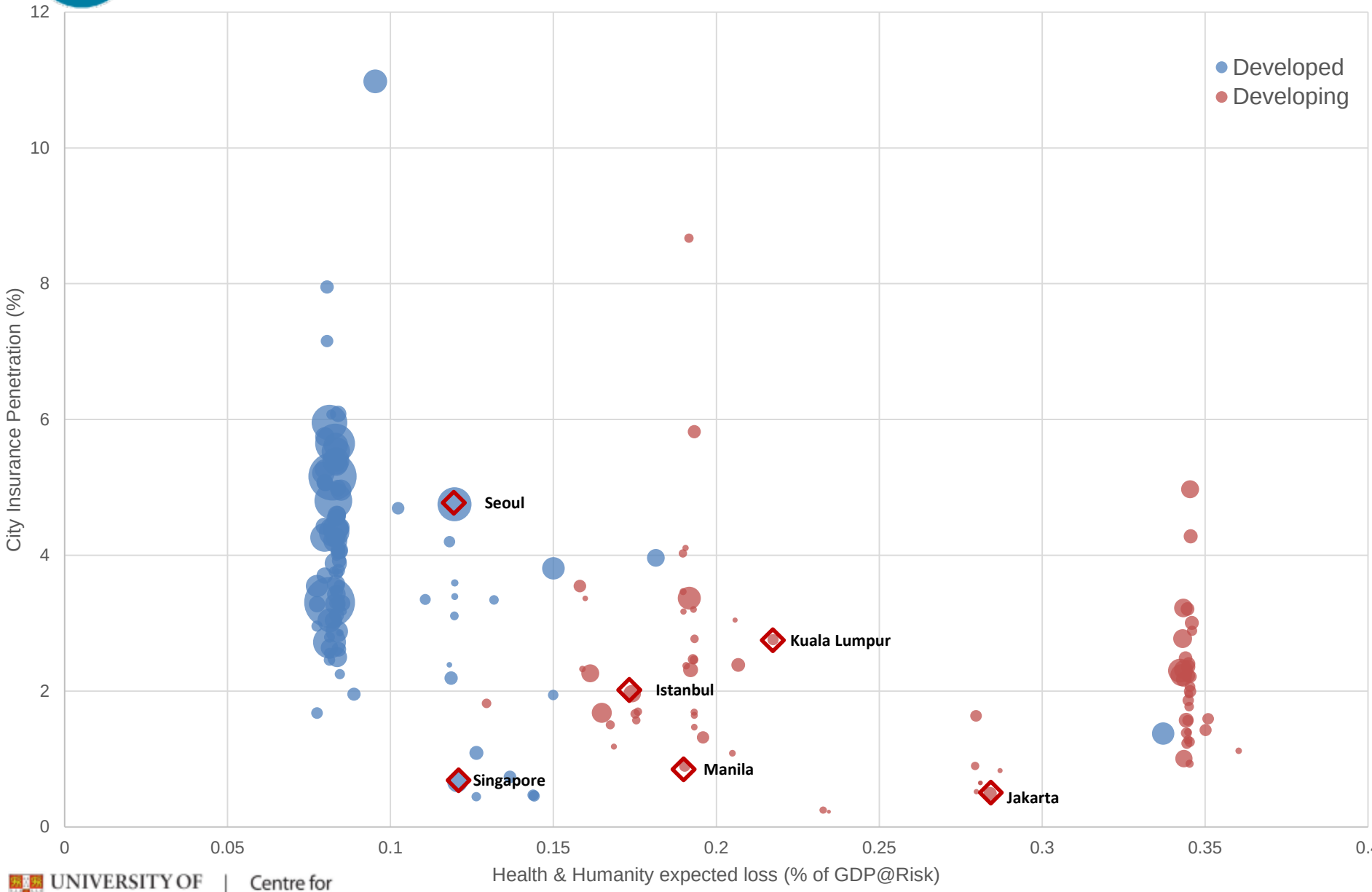
Cities by Technology and Space Risk



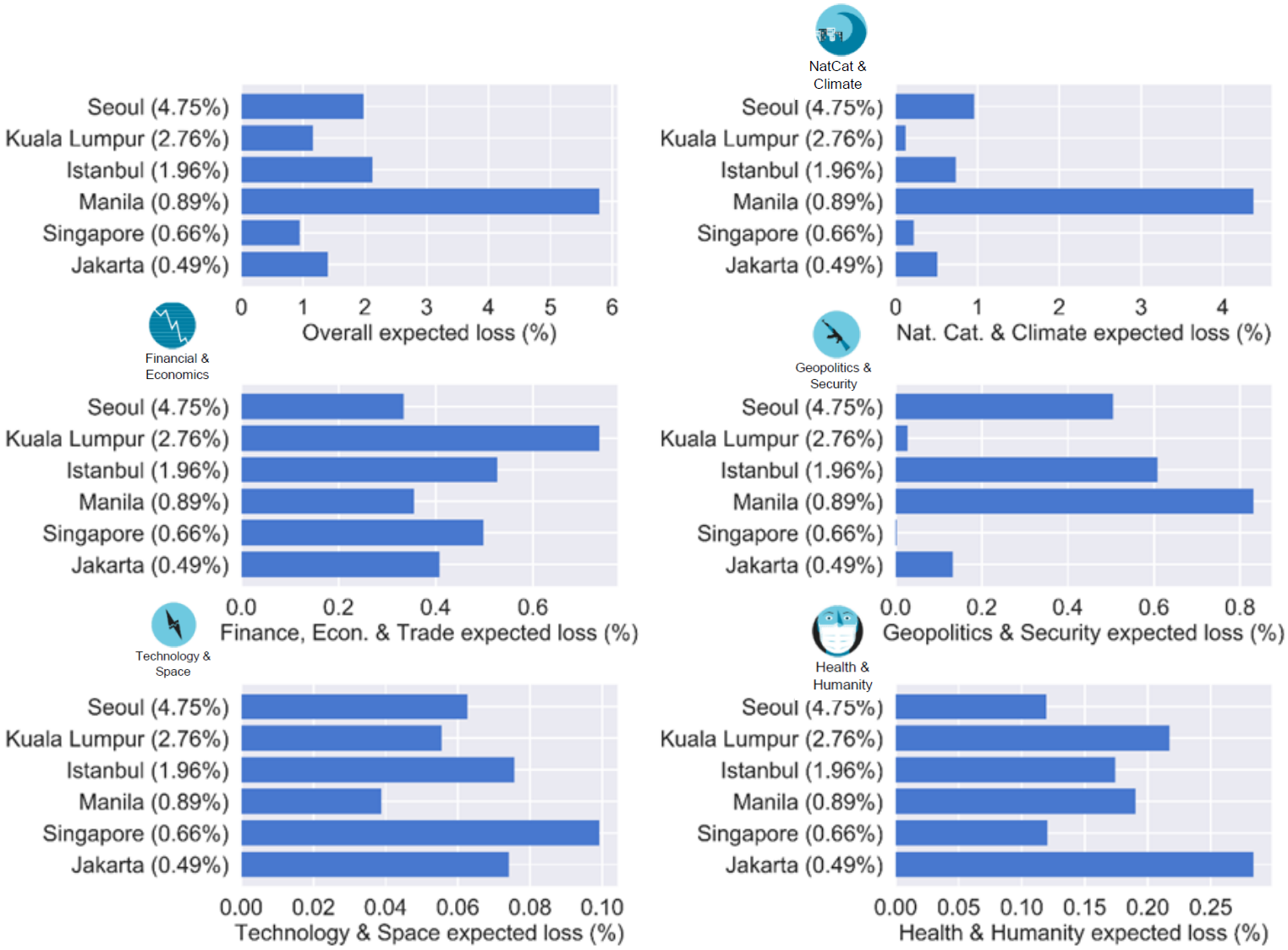
Cities by Health and Humanity Risk



Indicative insurance line loss from threat category impacts on exposure types

Insurance lines	Exposure type	Finance, economics & trade	Geopolitics & security	Natural catastrophe & climate	Technology & space	Health & humanity
Commercial property	Physical damage	-	Low	High	Medium	-
	Revenue loss / BI	-	Low	High	Medium	Medium
	Contingent BI	-	Low	Medium	High	-
Commercial political risk / war market	Physical damage	-	High	-	-	-
	Revenue loss / BI	-	High	-	-	-
	Human injury, illness or death	-	Medium	-	-	-
	Financial asset devaluation	Low	Medium	-	-	-
Casualty liability	Duty of care to 3rd party	Medium	Medium	Medium	Medium	Medium
	Human injury, illness or death	-	Medium	Medium	Low	Medium
Liability D&O; E&O	Financial asset devaluation	Medium	Low	Low	Medium	Medium
Workers comp	Human injury, illness or death	-	High	Medium	Low	Medium
Credit & surety	Financial asset devaluation	High	Medium	Low	Low	Medium
Personal accident	Human injury, illness or death	-	Medium	Medium	Low	Medium
Cyber liability	Digital asset loss	-	Low	-	High	-
Life & health	Human injury, illness or death	-	Low	Low	Medium	High
Pensions & annuities	Financial asset devaluation	High	Low	Low	Medium	Low

Select City Insurance Penetration with Expected Loss Share of GDP



Insurance Product Alignment with Risk

		Seoul	Kuala Lumpur	Istanbul	Manila	Singapore	Jakarta
Insurance penetration 2014		4.8%	2.8%	2.0%	0.9%	0.7%	0.5%
Change in insurance penetration 2014		0.4%	-2.8%	2.0%	-2.8%	7.2%	-2.2%
Risk by threat category	Finance, economics & trade	Low	High	Medium	Low	Medium	Low
	Geopolitics & security	High	Low	High	High	Low	Medium
	Natural catastrophe & climate	Medium	Low	Medium	High	Low	Medium
	Technology & space	Medium	Medium	Medium	Low	High	Medium
	Health & humanity	Low	Medium	Medium	Medium	Low	High
Alignment of insurance line with city risk	Commercial property	Moderate	Weak	Strong	Strong	Weak	Moderate
	Commercial political risk / war market	Strong	Weak	Strong	Strong	Weak	Moderate
	Casualty liability	Strong	Moderate	Strong	Moderate	Weak	Strong
	Liability D&O; E&O	Moderate	Strong	Moderate	Weak	Strong	Moderate
	Workers comp	Strong	Weak	Strong	Strong	Weak	Moderate
	Credit & surety	Moderate	Strong	Strong	Moderate	Strong	Moderate
	Personal accident	Moderate	Weak	Moderate	Moderate	Weak	Moderate
	Cyber liability	Strong	Moderate	Strong	Moderate	Strong	Weak
	Life & health	Weak	Strong	Strong	Moderate	Moderate	Strong
	Pensions & annuities	Moderate	Strong	Moderate	Weak	Strong	Weak

Conclusions

- Insurance growth dynamics and purchasing decisions are driven by multiple variables
  - Risk perception and objective metrics play an important role in driving the growth
  - Catastrophe events and knowledge of past events is a key dimension of insurance purchasing decisions
  - New regulation, shareholder accountability and exposure to international standards is a spur to insurance growth
- Differentiating Markets by Risk and Appetite
  - There are clear differentials in the mix of insurance products that have growth potential in different emerging markets
  - Matching insurance products to the risk profile of each local market is critical for increasing uptake
  - We believe that this dataset provides initial indicators of the appropriate insurance products to offer emerging market businesses
- We have developed an analytical framework for matching products to the risk profile of each local market

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