

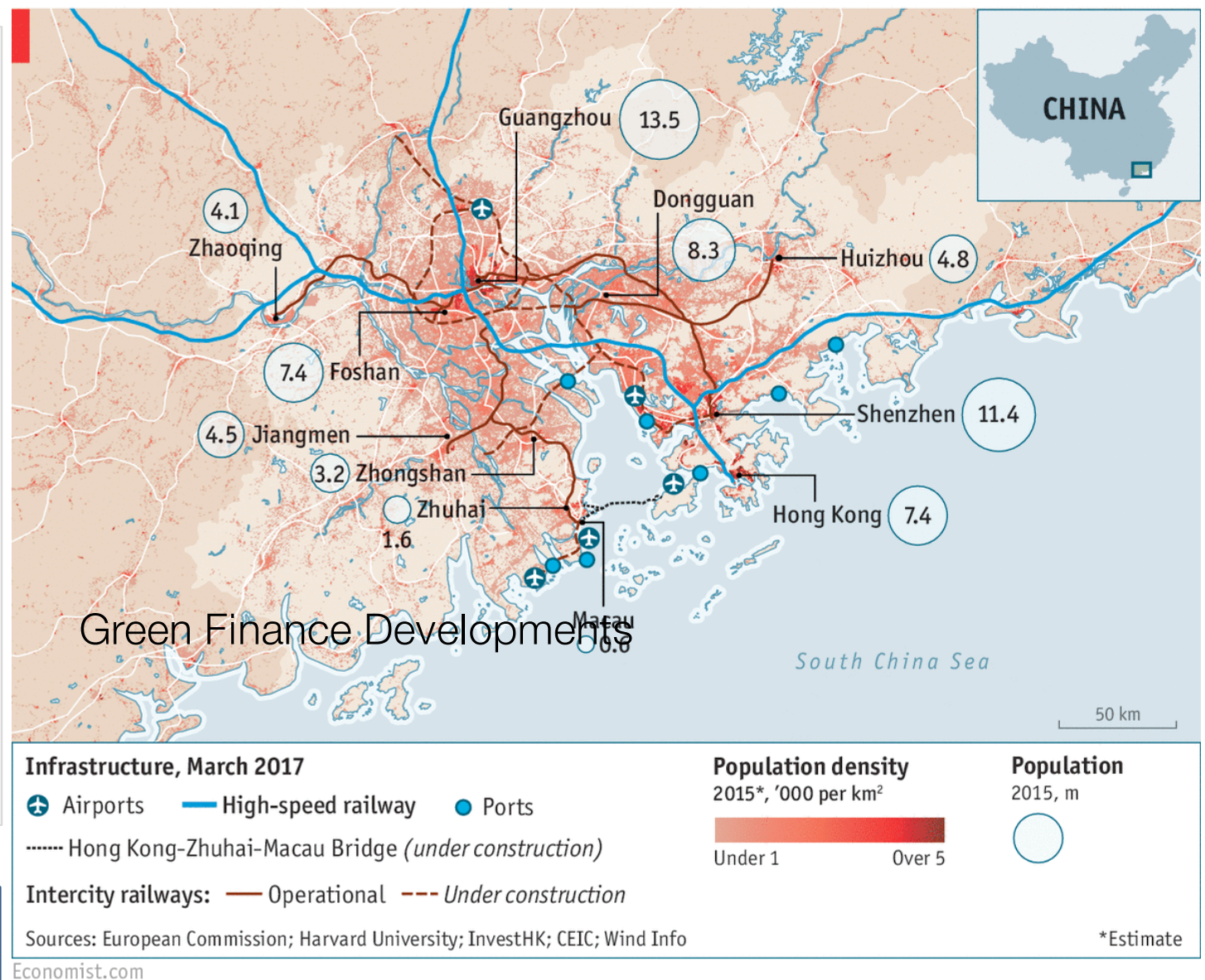
Financing Green Infrastructure in the Greater Bay Area

Dr. Entela Benz

entelabenz@ust.hk

GBA Facts

1. Location: Southern China
2. 11 cities
3. Population: 67million, **5% of China's Population**
4. USD 1.4trillion GDP, that is **20% of China's GDP**
5. Industry: Manufacturing, Financial Services (HK)



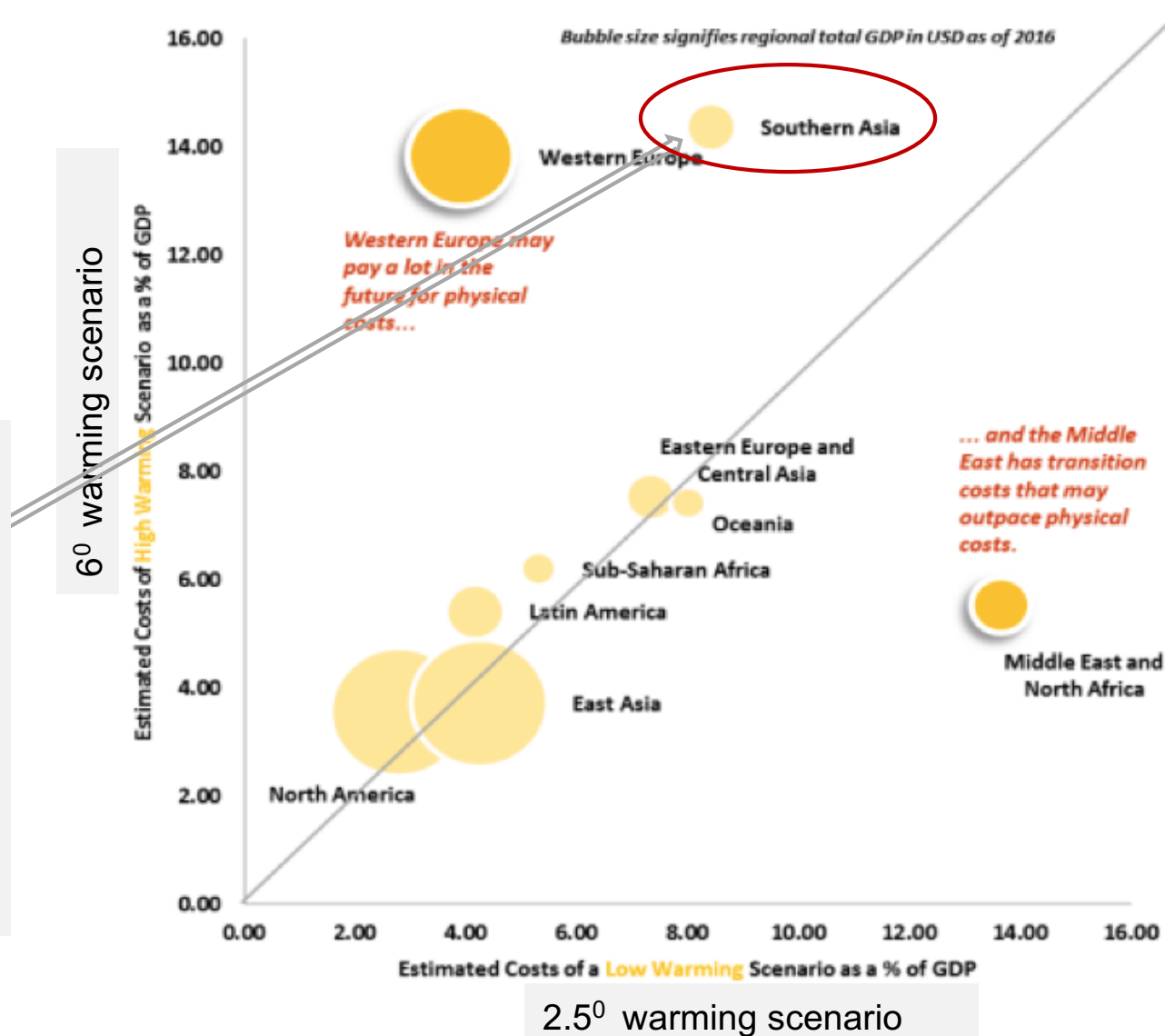
1. **Population density very high**
2. **Climate risk very high**

Potential economic and social costs are very high!

Estimated Physical (+Transition) Costs due to Climate-warming

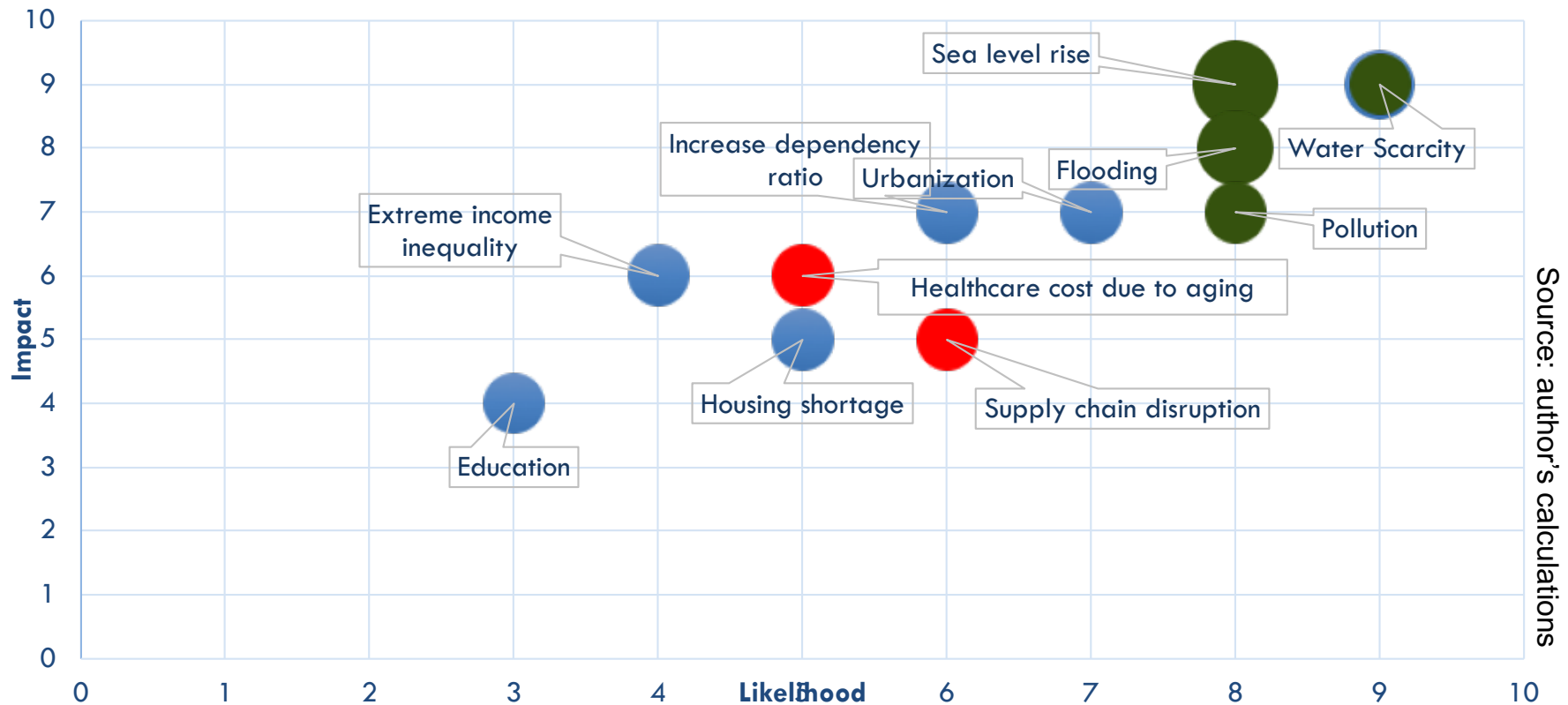
BY REGION...

Estimated cost as a percent of GDP in "High Warming" and "Low Warming" scenarios, as of 2016.



Climate-related economic costs (social not included) due to climate warming are between 10% to 14% of the GDP.

GBA Risks



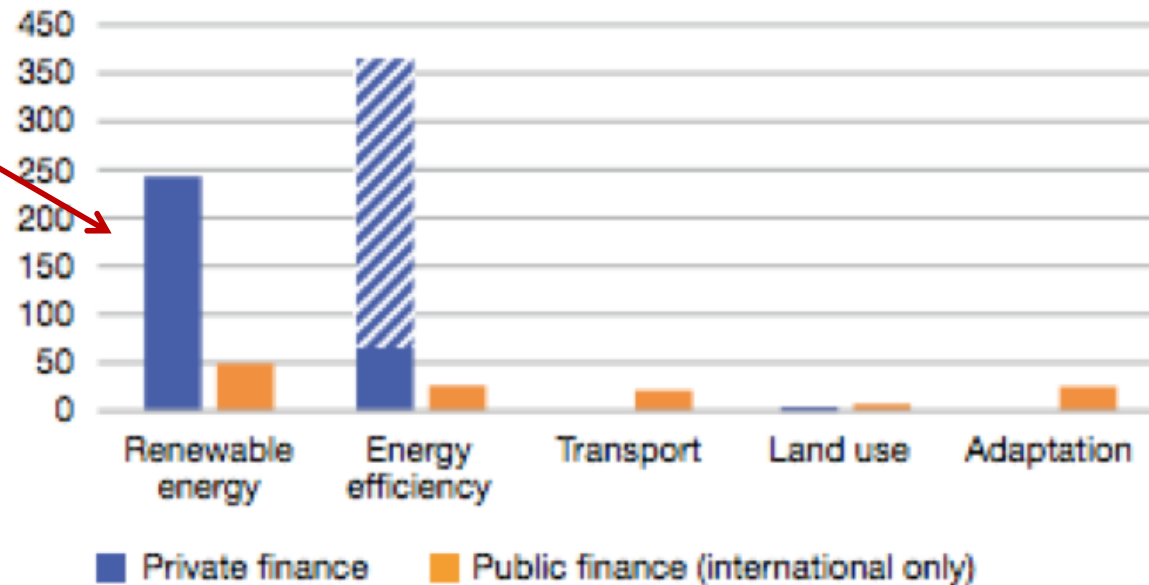
Example: Flood related economic losses

Urban agglomeration	Average annual economic loss (in USD million)	AAL as % of city GDP	100-year exposure 2050* (in USD billion)
Guangzhou	13,200	1.46	760
Mumbai	6,414	0.49	522
Kolkata	3,350	0.26	495
Shenzen	3,136	0.40	218

Source: Geneva Association: Insuring Flood Risk in Asia's High-Growth Markets

Climate Finance Priority should be Energy Efficiency

FIGURE 4. ESTIMATES OF GLOBAL CLIMATE FINANCE FLOWS IN 2015 (IN US\$ BILLION)



Source: I4CE, based on (Climate Policy Initiative 2015)

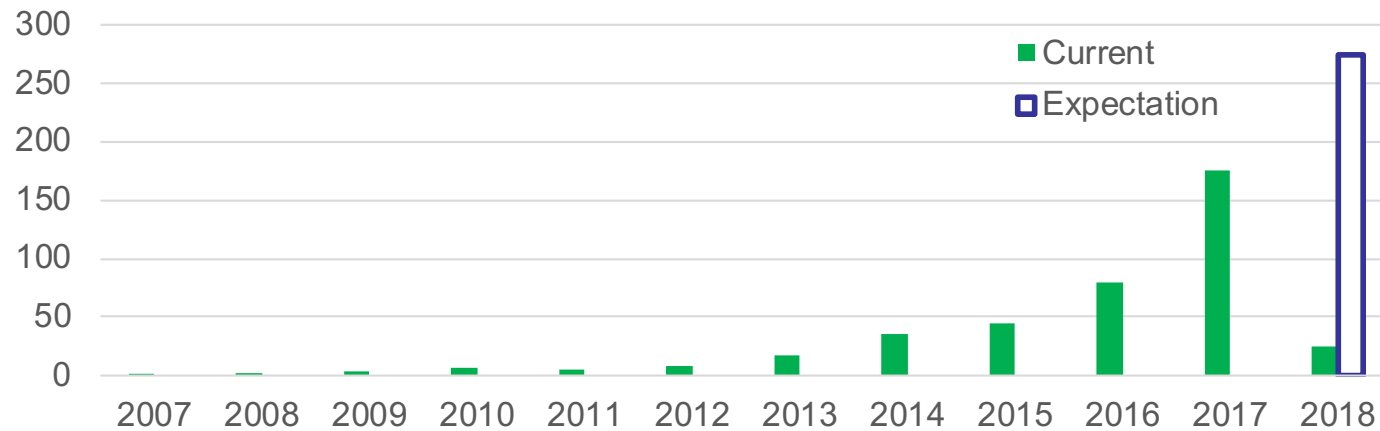
Financed typically by large corporations:
1- utilities
2- corporates
3- public institutions

Access

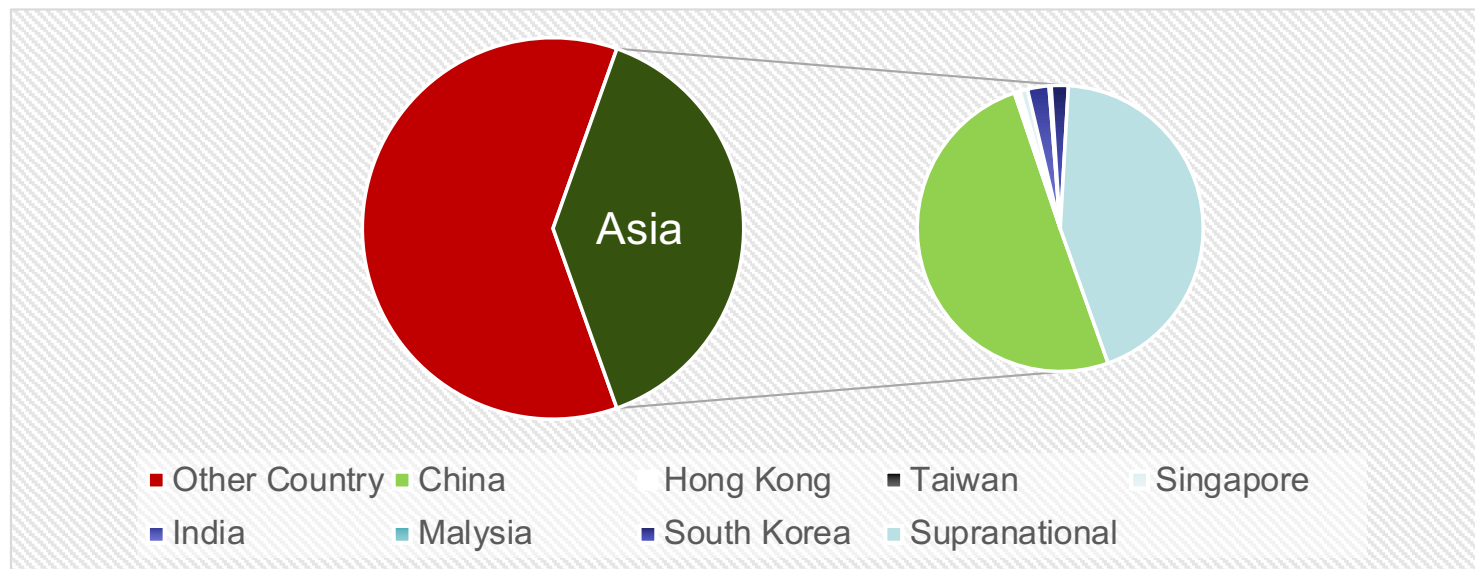
Green Bond market

China Green Bond Market

As of Feb 2018, total outstanding green bonds stand at \$338Bn, with \$124Bn issuance in Asia.

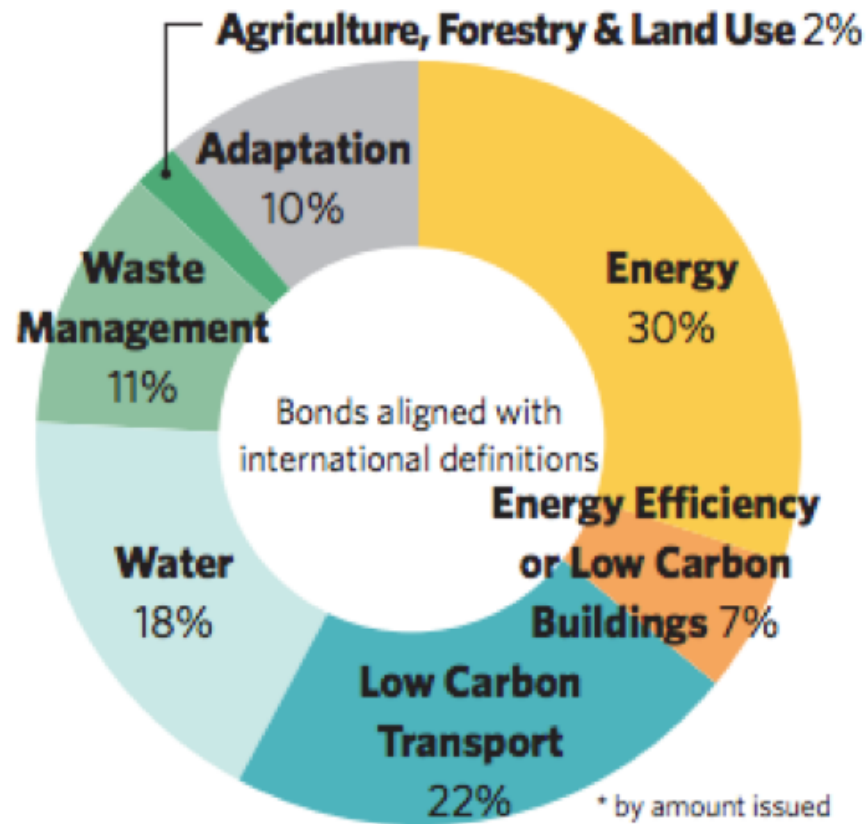


Source: Bloomberg 2018



Source: Bloomberg Nov 2017

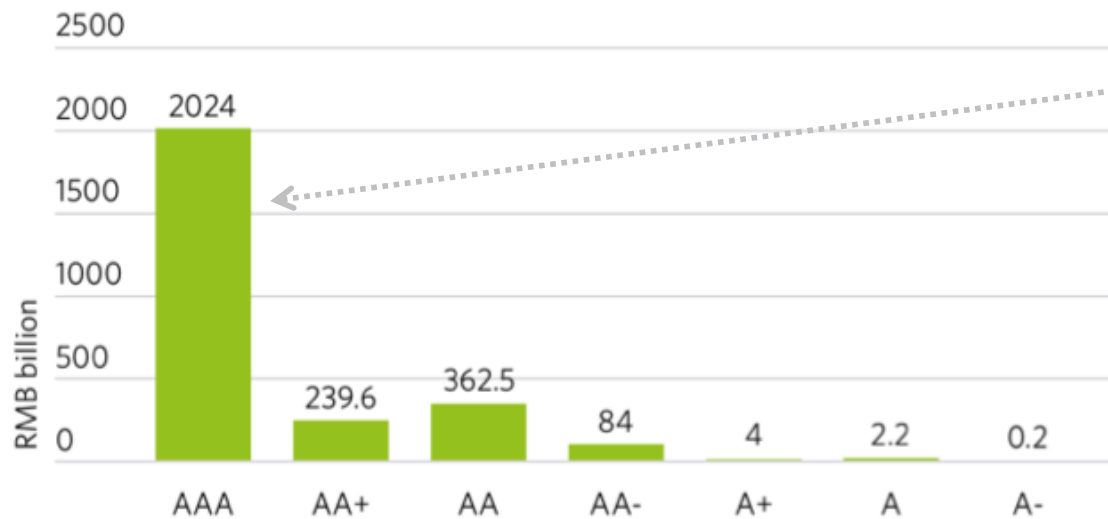
China Green Bonds usage of Proceeds



Source: CIB 2018

China Green Bonds Performance

Ratings distribution



>75% of the green bond issuers are AAA rating, hence low probability of default.

Maturity is 3-5yrs, but for government backed green bonds extends to 10yrs.

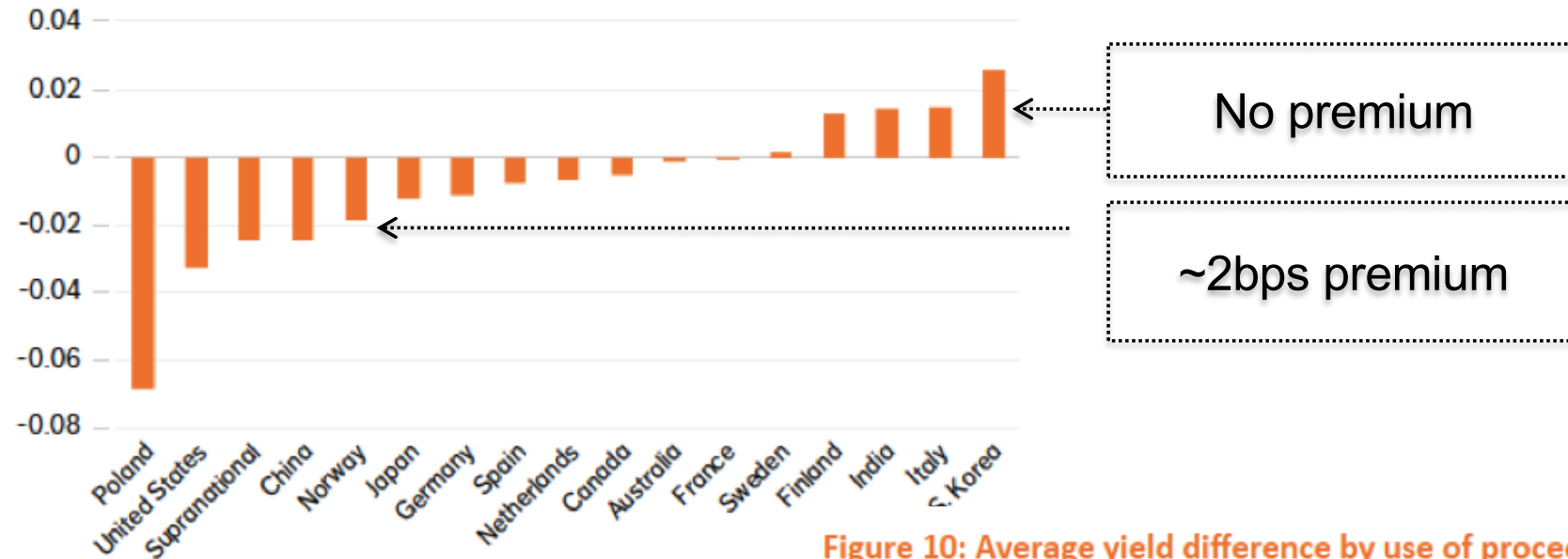
Source Bloomberg, 2017

Index Name	1 Month	1 Year	3 Years	5 Years	YTD (Dec 05, '17)
China Bond China Climate-Aligned Bond	(0.69%)	2.59%	6.76%	19.94%	4.24%
China Bond Green Bond	(0.69%)	(0.90%)	14.24%	27.47%	(0.2%)
China Bond Green Selected Bond	(0.73%)	(1.14%)	12.29%	25.58%	(0.14%)
China Bond New Aggregated Bond Index	(0.03%)	4.26%	3.63%	14.66%	5.15%

Source: CCDP

Is there a “Green” Premium?

Figure 4: Average yield difference by country

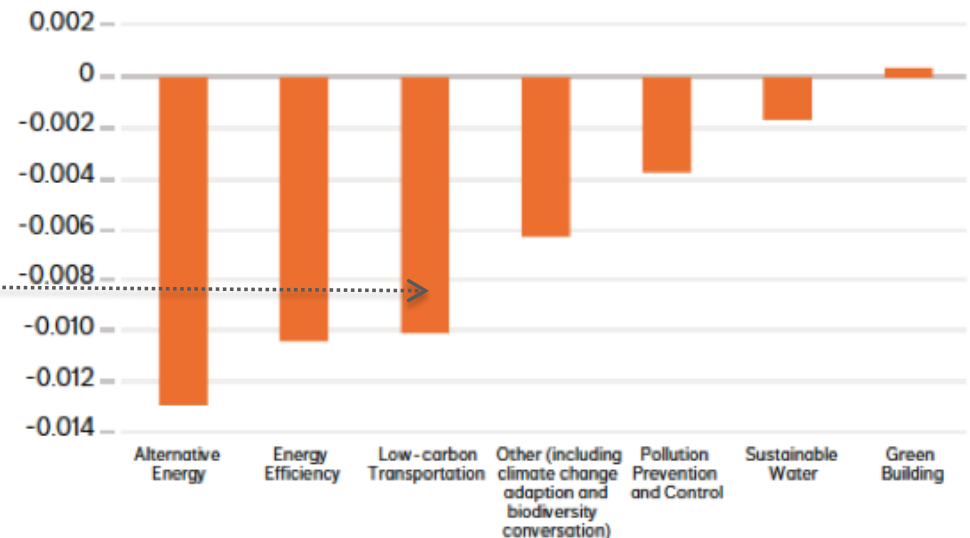


Source: NN Investment Partners

- 1- Premium depends on the use of proceeds
- 2- Energy efficiency projects sold at premium
- 3- Overall premium is not the driver for issuing “green”

Source: Unravelling the Green Bond Premium, January 2018

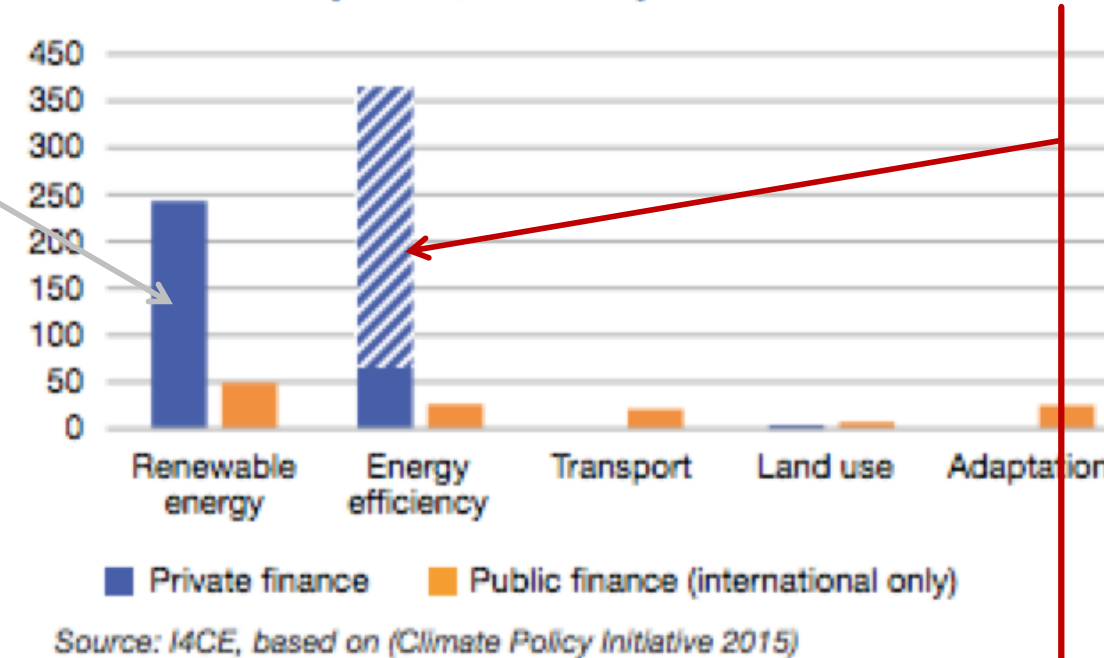
Figure 10: Average yield difference by use of proceeds



Source: NN Investment Partners

,however the Green Bond Market alone cannot finance the transition

FIGURE 4. ESTIMATES OF GLOBAL CLIMATE FINANCE FLOWS IN 2015 (IN US\$ BILLION)



Financed typically by large corporations:
1- utilities
2- corporates
3- public institutions

40% of low carbon energy investment will be made by a **large number of small project developers** (individuals):
1- electric vehicles
2- energy efficiency in buildings

Access

No access

Access

Green Bond market

Green Loan/ABS market

The “Green” label benefits are limited, unless restructured

