AIMA APAC Webinar: ESG for APAC Asset Managers - Navigating Climate-related Financial Risks

21 January 2021

Speakers:

- **Michael Bugel**, Managing Director & Co-Head of APAC, AIMA
- **Entela Benz**, CEO & Co-Founder, Intensel Limited
- **Leonie Kelly**, Head of ESG and Impact Advisory Services, Ogier Global

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THE ALTERNATIVE INVESTMENT MANAGEMENT ASSOCIATION

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Discussion

Speakers:

- **Entela Benz**, CEO & Co-Founder, Intensel Limited
- **Leonie Kelly**, Head of ESG and Impact Advisory Services, Ogier Global

Agenda

Why

- Climate Risk & Financial Impact
- Climate Risk Urgency – $ Loss
- Drivers for climate-risk integration

What

- What is Climate Risk?

How

- Part I: Navigating the Climate Journey – Your Portfolio Playbook
- Part II: INTENSEL: Data analytical tools to monitor climate risks

Conclusions

Q&A (10 mins)

Close

Ogier Global ESG & Impact Services

Why

Climate Risk & Financial Impact

- With the 2015 Paris Agreement, the global community agreed to substantially reduce anthropogenic emissions within the next three decades to keep global warming below the defined 1.5°C target (UNFCC, 2015)
- This will lead to major structural economic transitions that will impact businesses, investors, managers, consumers, and governments
- Paris Agreement demands that *“financial flows be made consistent with a pathway towards low GHG and climate-resilient developments”*

Financial markets shift gears from CSR to CR

- Linkage to financial planning or operational aspects of business or strategy low
- Reputation management focused

- ERM initiatives in business had limited links to corporate strategy, operations and management
- Environmental concerns (negative impacts) focused

- CR is embedded into strategy, investment decisions and risk management processes
- Physical and transitional climate risks focused

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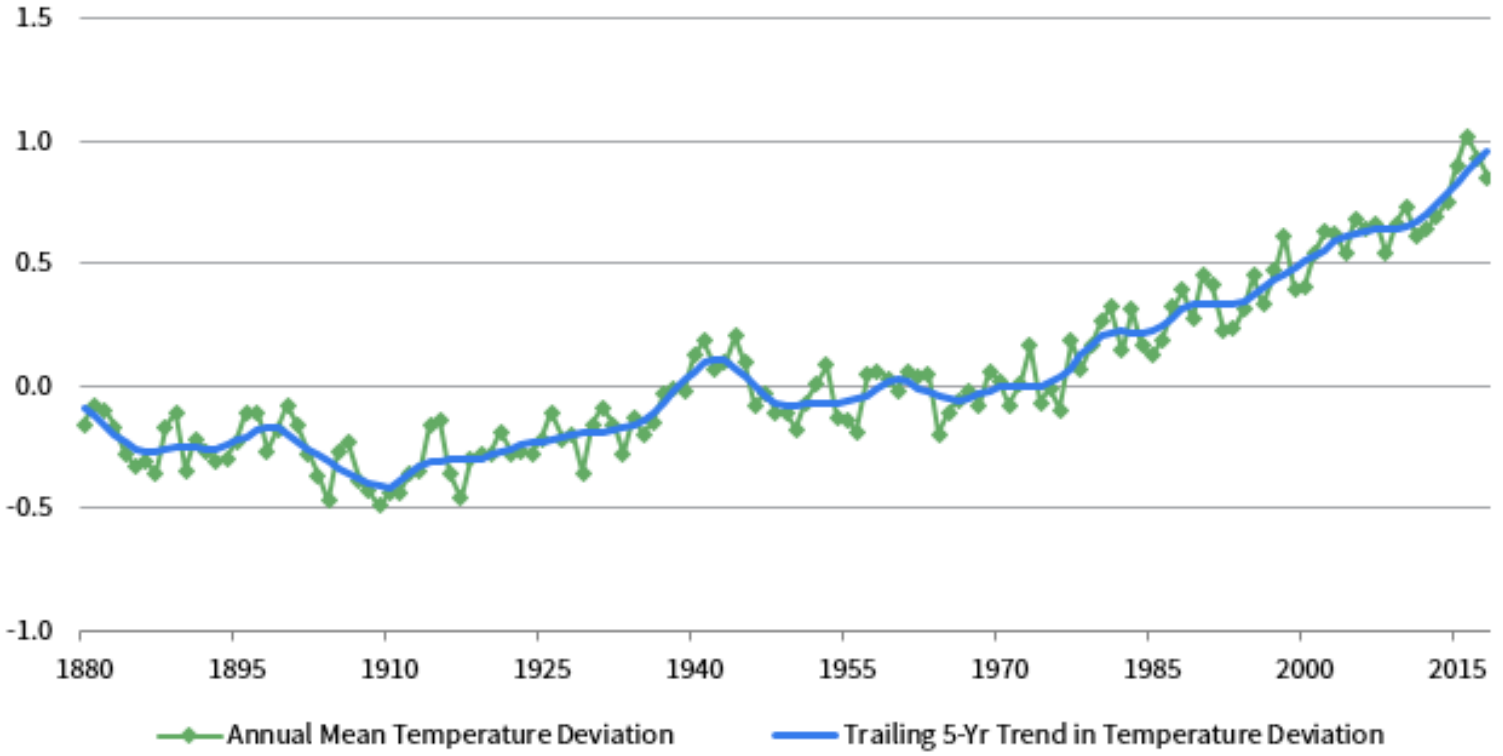
Climate risk builds upon, but is distinct from ESG investing

- In general, four different broad motives for ESG investing can be distinguished: ethical reasons, impact, financial return, and financial risk

- In this presentation we are focused on climate risk as a source of financial risk

The Science

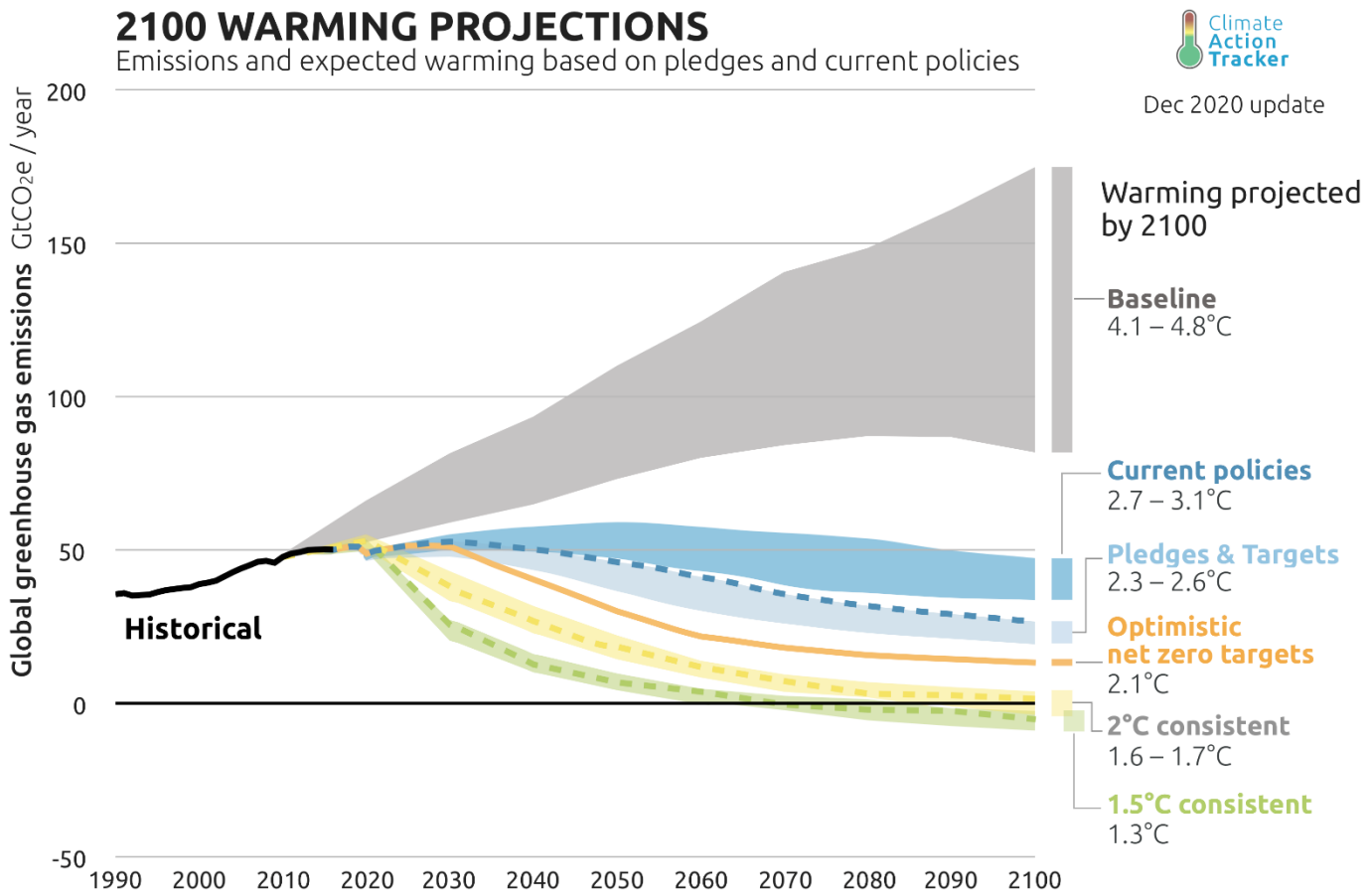
DEVIATION FROM THE GLOBAL MEAN SURFACE TEMPERATURE ESTIAMTES BASED ON LAND & OCEAN DATA 1880-2010 (DEGREES CELSIUS)



The global average temperature in 2018 was about 1.0°C more than pre-industrial levels

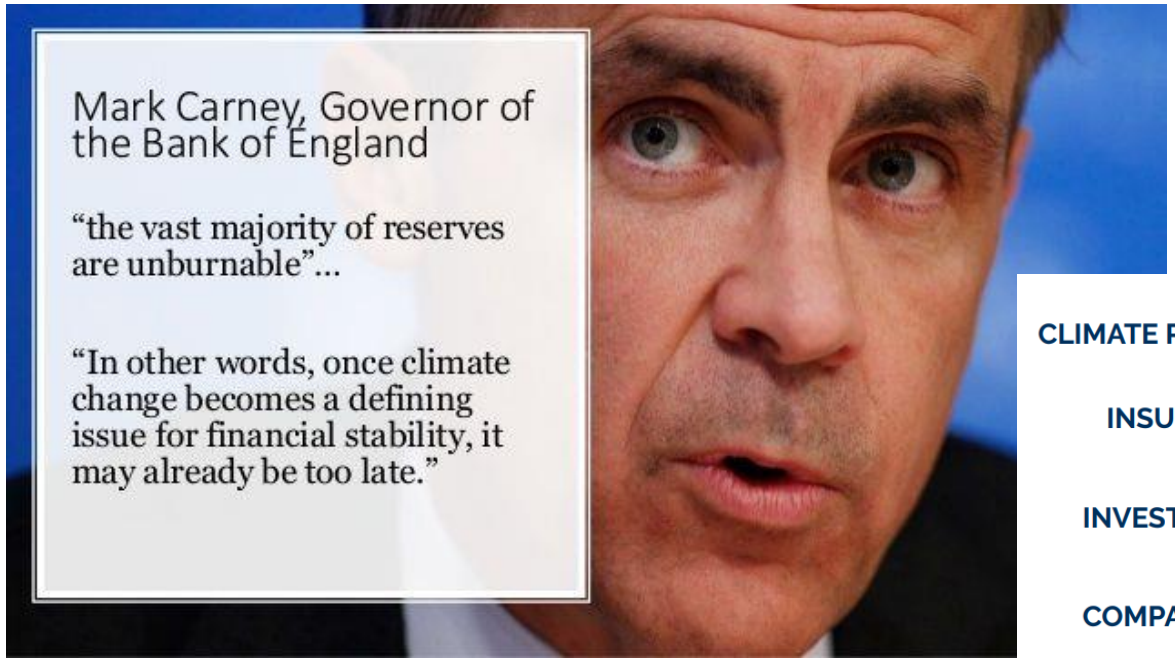
Source: NASA Goddard Institute for Space Studies.

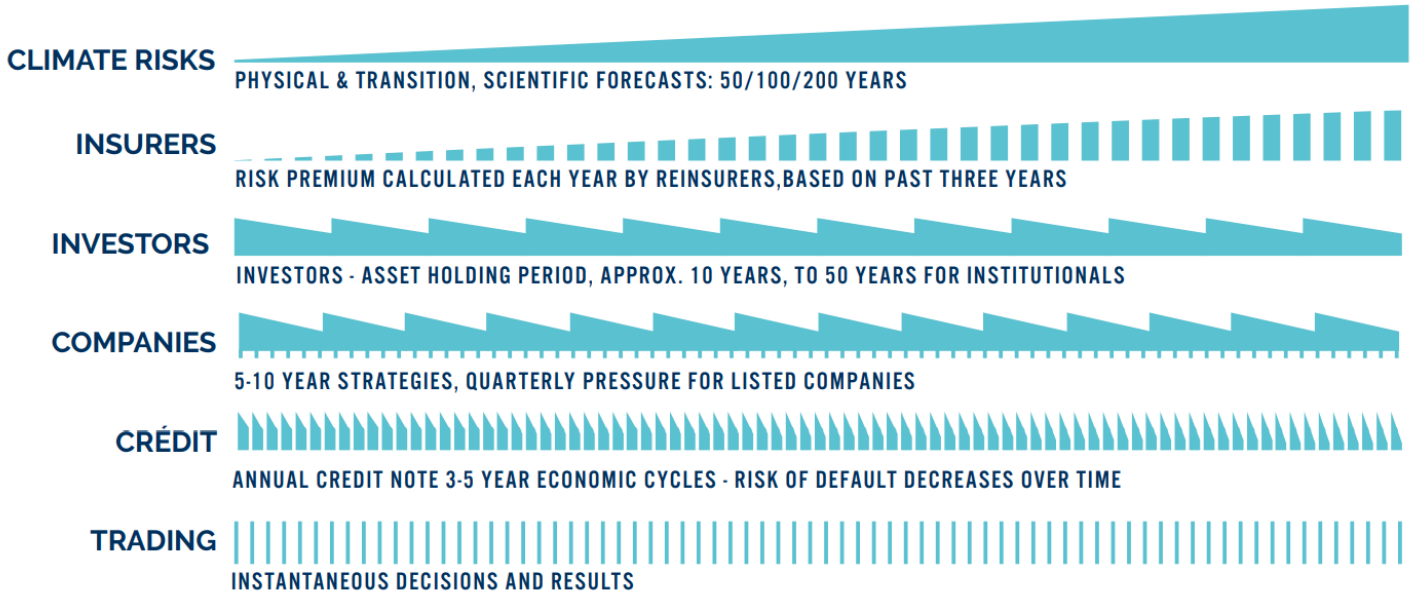
The Science



Source: Climate Tracker

Tragedy of the Horizon





Source: Finance for Tomorrow (2020)

Financial impact on asset valuations - $ Loss

- As scientists continue to reinforce the severity of climate change, the potential disruption and financial implications have come to the forefront
- Cost of inaction – typhoons, wildfires, storms and other extreme weather events are causing record economic losses, and are an existential threat to society and planet
- The bankruptcy of the major Californian utility PG&E, called “the first climate-change bankruptcy” by The Wall Street Journal, is the most recent example.

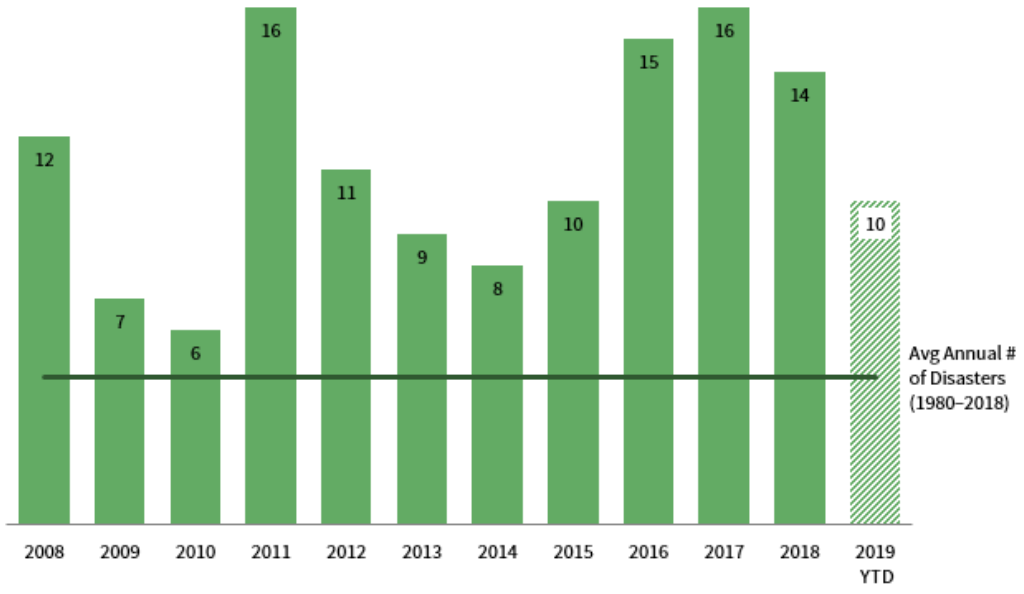
Financial impact on asset valuations - $ Loss

VaR = USD$2.5 – 4.2t

- The value of global financial assets at risk from climate change has been estimated at US$2.5t by Dietz et al., and US$4.2t by the Economist Intelligence Unit

Source: Dietz, Bowen, Dixon & Gradwell (2016) and Economist Intelligence Unit (2015).

NUMBER OF US INFLATION ADJUSTED BILLION $ WEATHER & CLIMATE DISASTERS PER ANNUM



Source: NOAA National Centers for Environmental Information. Data as of Sept 2019.

Hurricanes, wildfires and floods exacerbated by climate change cost the world $210 billion in damages

Munich Re. "Record hurricane season and major wildfires – The natural disaster figures for 2020."

Financial impact on asset valuations - $ Loss

- The performance of an investment portfolio and its risk-return profile are closely linked to the value of its underlying assets
- This value is increasingly affected by climate-related risks and opportunities resulting from the effects of climate change and the adaptation and mitigation measures that are taken to respond to these effects and to prevent their further intensification
- Carbon Tracker [1] has pointed out that known fossil fuel reserves exceed the remaining global carbon budget by around x5, meaning that **80% of these reserves would be un-burnable** in a scenario limiting temperature rises to 2°C
- This means there could be up **to US$7 trillion of stranded upstream** fossil fuel assets.[2]

Source: 1 - Unburnable Carbon: Are the world's financial markets carrying a carbon bubble?' Carbon Tracker, November 2011.
2- 'Perspectives for the Energy Transition,' The International Energy Agency and the International Renewable Energy Agency, 2017.

Drivers for climate-risk integration

- Asset valuations
- Risk outlook
- Regulators
- Competitors
- Investors
- Supply chains

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Regulatory Developments

- Growing legal and regulatory consensus that material climate-related factors must be considered and managed by managers
- 730 hard and soft-law policy revisions, across 500 policy instruments relating to ESG factors (PRI)
- 230 sustainability standards across more than 80 sectors and 180 countries (International Trade Centre)

APAC Legal & Regulatory Developments

Hong Kong

- Companies Ordinance – Directors' Reporting
- Listing Rules – ESG Reporting Guide
- Securities and Futures Commission (SFC) – ESG
- Reporting /SFC Circular
- Securities and Futures Commission (SFC) Climate-related Fund Manager Code of Conduct (Consult)
- Hong Kong Monetary Authority – Sustainable Banking and Green Finance Measures
- Green Bond Grant Scheme

Mainland China

- Shanghai Stock Exchange issued the Environmental Information Disclosure Guidelines
- the People's Bank of China (PBOC), together with other ministers and governmental departments, Guiding Opinions on Building a Green Financial System (the GOBGFS).
- Chinese securities regulator China Securities Regulatory Commission (CSRC), revised the Code of Corporate Governance of Listed Companies
- Shanghai and Shenzhen Stock Exchange have launched ESG information disclosure guidelines
- Asset Management Association of China (AMAC) issued the Green Investment Guidelines

Singapore

- Singapore Stewardship Principles for Responsible Investors
- Singapore Exchange ("SGX") has implemented a "comply or explain" regime for sustainability reporting
- MAS expanded the Green Bond Scheme to include social and sustainability bonds, and renamed the scheme as "Sustainable Bond Grant Scheme"
- MAS has co-drafted a set of draft Environment Risk Management Guidelines with the Investment Management Association of Singapore to provide guidance to asset managers
- MAS Green Finance Action Plan

Japan

- Japan became one of the first Asian markets to adopt a Stewardship Code in 2014
- Corporate Governance Code
- "Green Bond Guidelines" released by Ministry of the Environment
- published TCFD Guidance for companies starting disclosure

Note: This is not an exhaustive list of regulatory developments.

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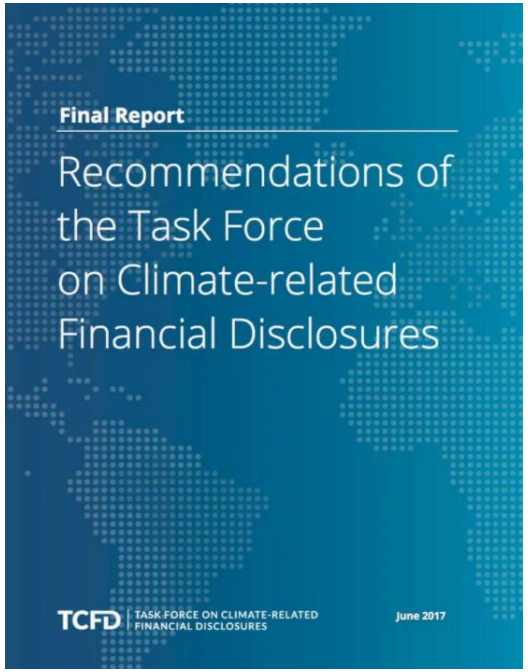
Breaking this down into risks

- The measurement of climate-related risks for investors is still an emerging field
- To assist with this, the **Task Force on Climate-related Financial Disclosures (TCFD)** was established in 2015
- TCFD provides recommendations for investors to identify risks and opportunities from climate change and for organisations to improve the standard of climate-related financial disclosures.

Source: Swiss Sustainable Finance



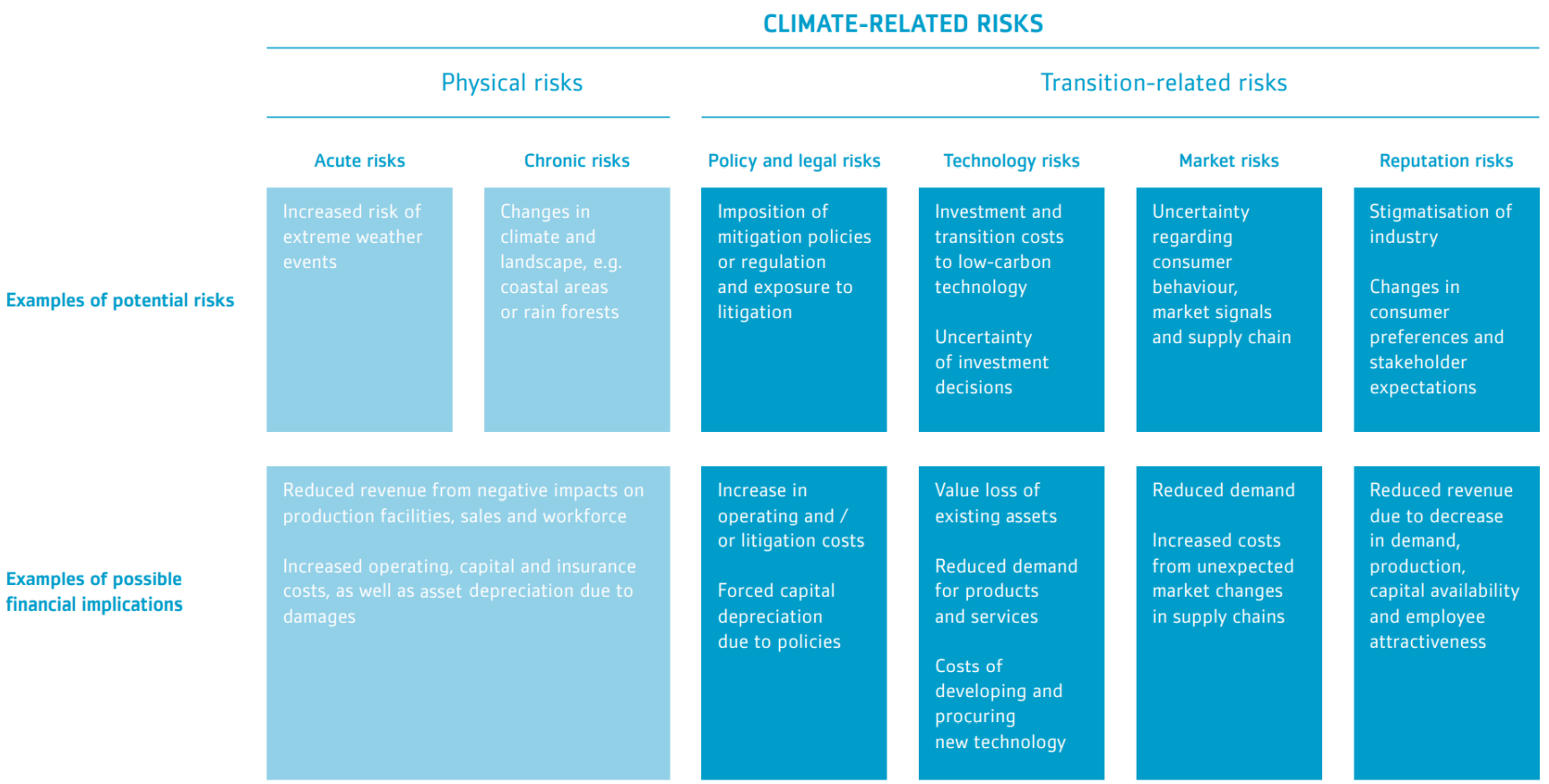
What

What is Climate Risk?

- Climate risk is not equal to ESG investing
- The framework of climate risk factors includes:

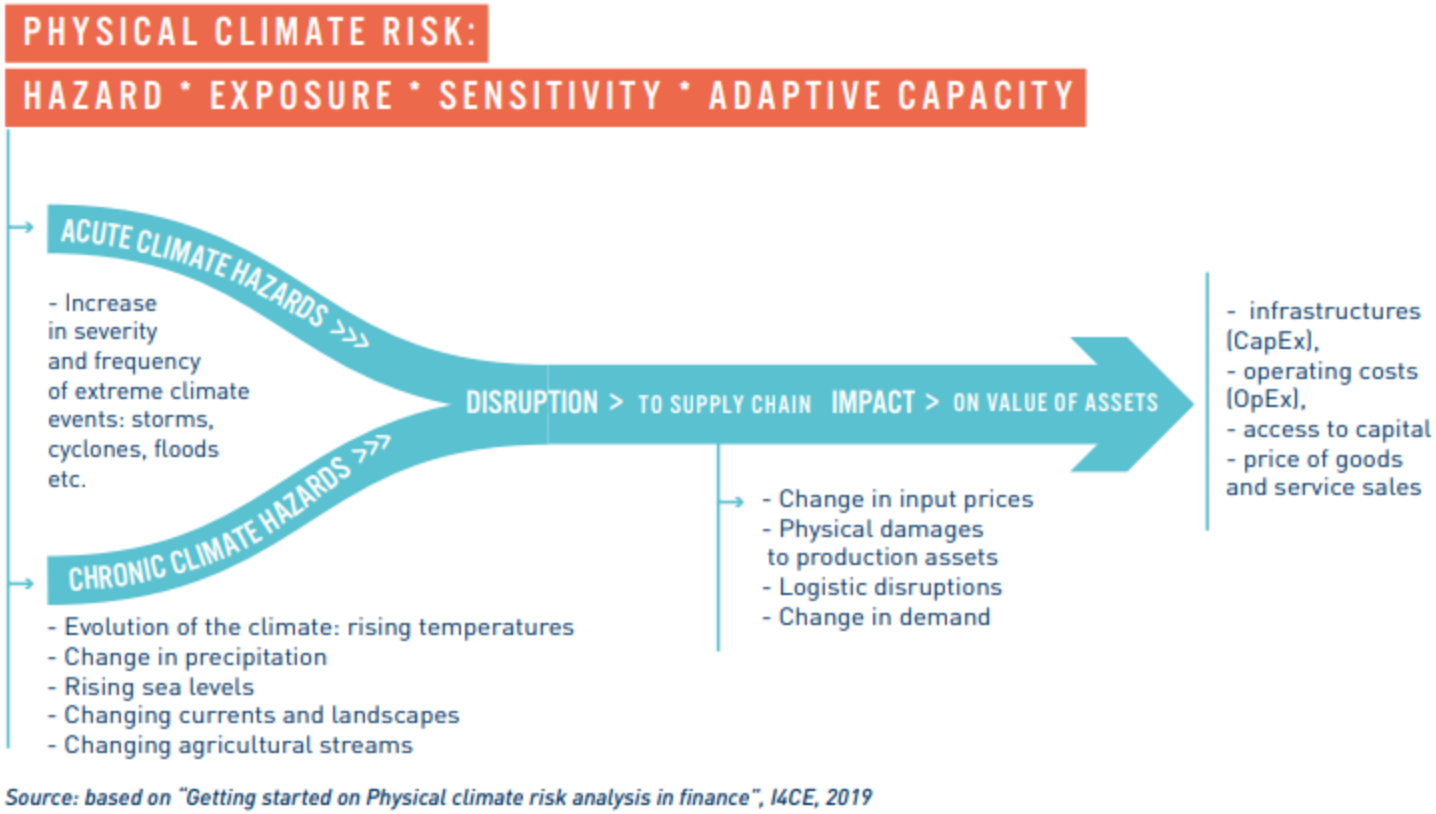
Source: Finance for Tomorrow (2020)

Physical and Transition Risks to Portfolios



Source: Swiss Sustainable Finance (2020)

Understanding Physical Risk



Source: Finance for Tomorrow (2019)

Understanding Transition Risk

	RISKS	OPPORTUNITIES
REGULATION	Carbon pricing Transparency requirements Product and service regulations/litigation	Better information transparency
MARKETS	Consumer behaviour Cost of raw materials Uncertain market signals	Access to new markets
TECHNOLOGIES	Competition from low-carbon innovations Uncertainty over investments and R&D	Energy independence Process efficiency
REPUTATION	Consumer and investor preferences Stigmatisation of a sector	Positive reputation

Source: based on "Managing climate risks for financial actors: from theory to practice", I4CE, 2017

Source: Finance for Tomorrow (2019)

How – Part I

Navigating the Climate Journey – Your Portfolio Playbook

3 **Investment & Risk Management**

	Define the universe	Investment analysis	Portfolio construction	Risk management	Portfolio implementation
What?	• Define risk limits for M&E of climate risks based of risk, return, impact appetite	• Identify and assess assets according to material climate risks in ST, MT and LT	• Manage fund within mandate/risk limits	• Develop scenario analysis assessments	• Engage with portfolio companies on climate-related issues
Example approach only	• Climate-specific exclusions criteria for example	• Selecting issuers that fit within a transition to 'well below 2°C' for example	• Emission intensity limit and targeted decarbonisation pathway	• Financial risk management carbon tooling and scenario analysis	• Engagement – influencing the investee companies for example

Key factors for consideration – asset class, sector, focus, country, holding periods and data availability

Common measures of climate-related risks
Investor Goals

3 Investment & Risk Management

Investor goals could be to:

- Reduce exposure to climate-related risks (financial risk)
- Reduce the climate impact of assets under management (reputational risk)
- Contribute to the transition to a low-carbon economy (financial and reputational opportunities)

Common measures of climate-related risks Investment Strategy Examples

3

Investment & Risk Management

Investment strategy examples:

- Reduce GHG emissions of investee companies, e.g. by excluding or underweighting companies from utility or energy sectors from the portfolio
- Reduce exposure to climate-related changes in regulation, e.g. by excluding companies with fossil fuel reserves which may become stranded due to tighter regulation on emissions
- Focus on substitution, e.g. with higher investments in renewable energies and other promising new technologies which may profit from a transition to a low carbon economy

Common measures of climate-related risks
The Metrics

Carbon Footprint

- It expresses the amount of annual GHG emissions which can be allocated to the investor per million USD invested in a portfolio and is therefore probably the most intuitive carbon metric available at the portfolio level

ANALYSIS PERIMETERS (FROM GHG_PROTOCOL):	
SCOPES 1&2	Direct and indirect emissions from a company's activities. The reporting entity is highly accountable because it can directly affect these emissions.
SCOPE 3	Emissions that occur upstream and downstream in the value chain of the reporting company, induced by the company's activities but from sources owned or controlled by other organisations. These emissions must be included in the calculation to fully understand the entity's carbon-dependence, even if it is only "shares" the responsibility with other players.

Carbon Intensity

- Puts the total GHG emissions that can be attributed to an investor in relation to the total share of revenue attributed to an investor. It is expressed in tons of CO_2 equivalents per million USD revenue (tCO_2e/mUSD).

Source: Finance for Tomorrow (2019) and Swiss Sustainable Finance (2020)

Common measures of climate-related risks
The Metrics

RISK EXPOSURE SCORES	give a technical analysis of an asset's exposure to climate hazards as well as to a broader range of ESG risks. These scores are calculated for the short, mid and long term, and apply to widely diverse assets.
+	Concrete risks identification; local approach, sometimes in specific geographic areas; can be used to compare securities or portfolios.
−	Incompatible with financial models because the score is not a probability; hard to compare scores between different methods; average scores tend to level out the data.

GREEN SHARE/ BROWN SHARE	inform financial players of a company's distribution of revenues between "green" activities that will be favoured and "brown" activities that will be penalised by the low-carbon transition.
+	Defines exposure to risk and opportunity; can be used to compare portfolios; can be used to develop a strategic vision.
−	Hard to identify portions of a company's revenue; hard to obtain prospective data; hard to analyse the whole value chain.

Source: Finance for Tomorrow (2019) and Swiss Sustainable Finance (2020)

Common measures of climate-related risks
The Metrics

Climate Scenario Analysis

- Climate scenario compatibility analysis is based on the idea that a “carbon budget” (i.e. the amount of emissions which can be safely emitted until 2050 to stay below a certain threshold of global warming), can be allocated to sectors and companies.
- This method takes data on future developments (i.e. investment plans) into account and thus has a forward-looking character.

Climate-related Value at Risk

- These approaches aim at expressing the effect of climate-related risks on the value of a portfolio in a single figure. They include physical risks as well as transition risks and can be modelled for several different alternative climate scenarios.

ESG data

- Traditional ESG indicators can further complement the analysis of a portfolio’s transition-related risks. Indicators that collect data on companies’

Source: Finance for Tomorrow (2019) and Swiss Sustainable Finance (2020)

Sample Portfolio Snapshot – Climate VaR

Global fund example

Scenario	Climate VaR Contribution	Monetary Risk Contribution
Low Carbon Transition Risk Scenarios *Selected Model: 2°C | AIM CGE*	**-0.59%**	**-0.59 USD million**
Policy Risk (2°C)	-4.43%	-4.43 USD million
Technology Opportunities (2°C)	+3.84%	3.84 USD million
Physical Climate Scenarios *Selected Model: Aggressive*	**-7.16%**	**-7.16 USD million**
Extreme Cold	+0.22%	0.22 USD million
Extreme Heat	-1.44%	-1.44 USD million
Precipitation	+0.15%	0.15 USD million
Extreme Snowfall	+0.02%	0.02 USD million
Extreme Wind	-0.03%	-0.03 USD million
Coastal Flooding	-6.15%	-6.15 USD million
Tropical Cyclones	-0.12%	-0.12 USD million
Aggregated Climate VaR	**-7.75%**	**-7.75 USD million**

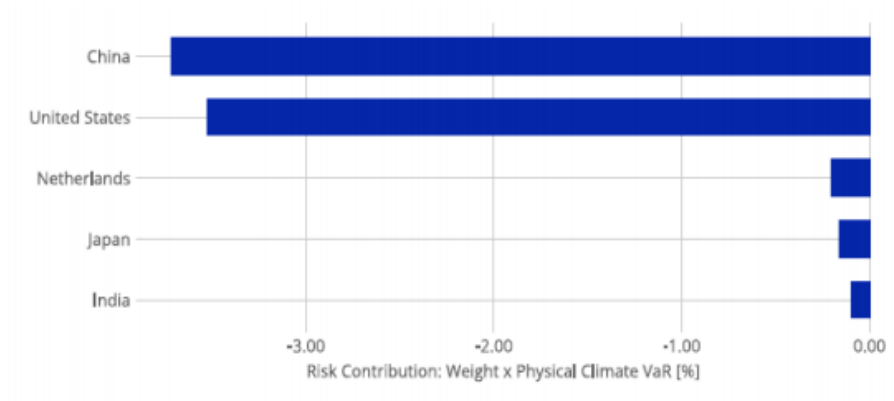
Source: MSCI ESG Research LLC.

- The Aggregated Climate VaR is -7.75%, resulting in a USD 7.75 million monetary risk contribution for a USD 100 million investment
- This risk can be further broken between Transition Risks and Opportunities and Physical Risks and Opportunities
- Under the 2-degree Celsius (2°C) scenario considered, Transition Risks and Opportunities amounted to a downside valuation impact of -0.59%
- On Physical Risks and Opportunities, the overall risk of -7.16% was largely driven by Coastal Flooding (-6.15%) and Extreme Heat (-1.44%)

Source: MSCI (2020)

Sample Portfolio Snapshot – Climate VaR

Exhibit 7: Countries Representing the Most Physical Risks



Source: MSCI ESG Research LLC.

- China and the United States also contributed substantially to the portfolio's Physical Risks and Opportunities with the two countries representing by far the largest contributions.

Source: MSCI (2020)

Exhibit 8: Highest Risk Facilities in the People's Republic of China

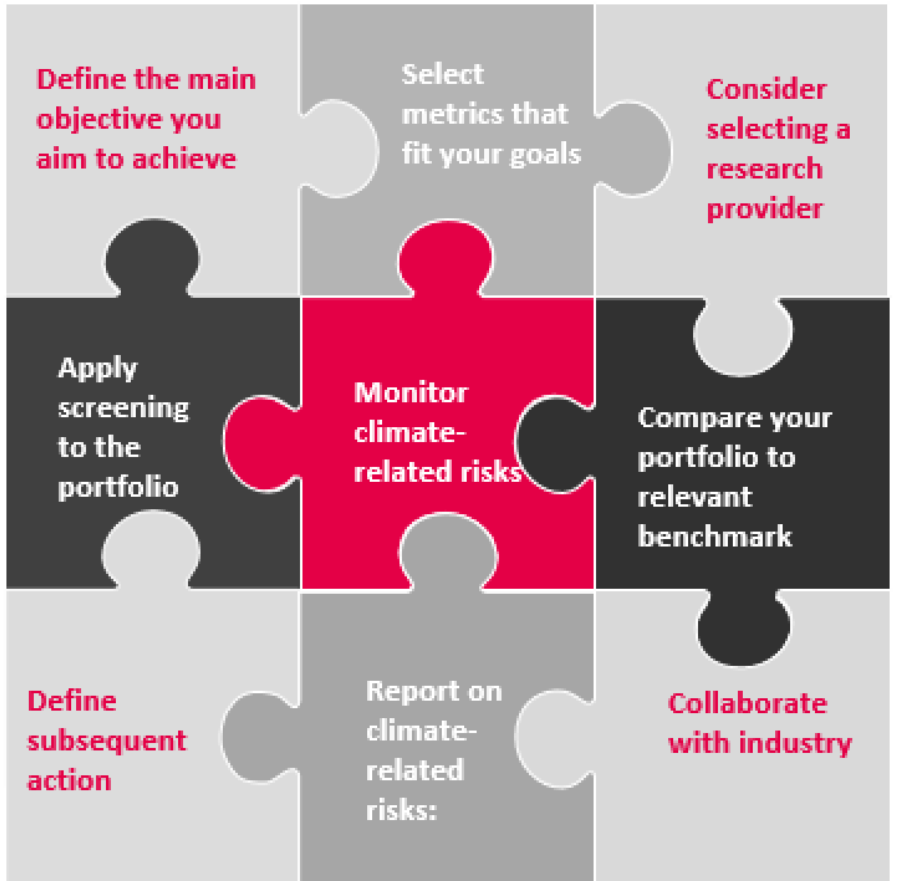
#	Location	Company Name	ISIN	Risk Type
1	Shenzhen City, PRC	ANHUI CONCH CEMENT COMPANY LIMITED	CNE0000019V8	Coastal Flooding
2	Tianjin Binhai Intl. Airport, PRC	Airbus SE	NL0000235190	Coastal Flooding
3	Changning, PRC	JOHNSON CONTROLS INTERNATIONAL PUBLIC LIMITED COMPANY	IE00BY7QL619	Coastal Flooding
4	Wuhan City, PRC	LENOVO GROUP LIMITED	HK0992009065	Extreme Heat
5	Tuanjie Xincun Subdistrict, PRC	LENOVO GROUP LIMITED	HK0992009065	Extreme Cold

Source: MSCI ESG Research LLC.

Observations of Climate Risk Data

- Scope of emissions?
- Look backward or forward?
- To engage or not to engage?
- Finding the data?
- Data quality?
- Double counting?
- Estimated data?

Asset Manager Climate Roadmap – Short Guide – Example only



Source: Combination of SSF (2020) and other related sources

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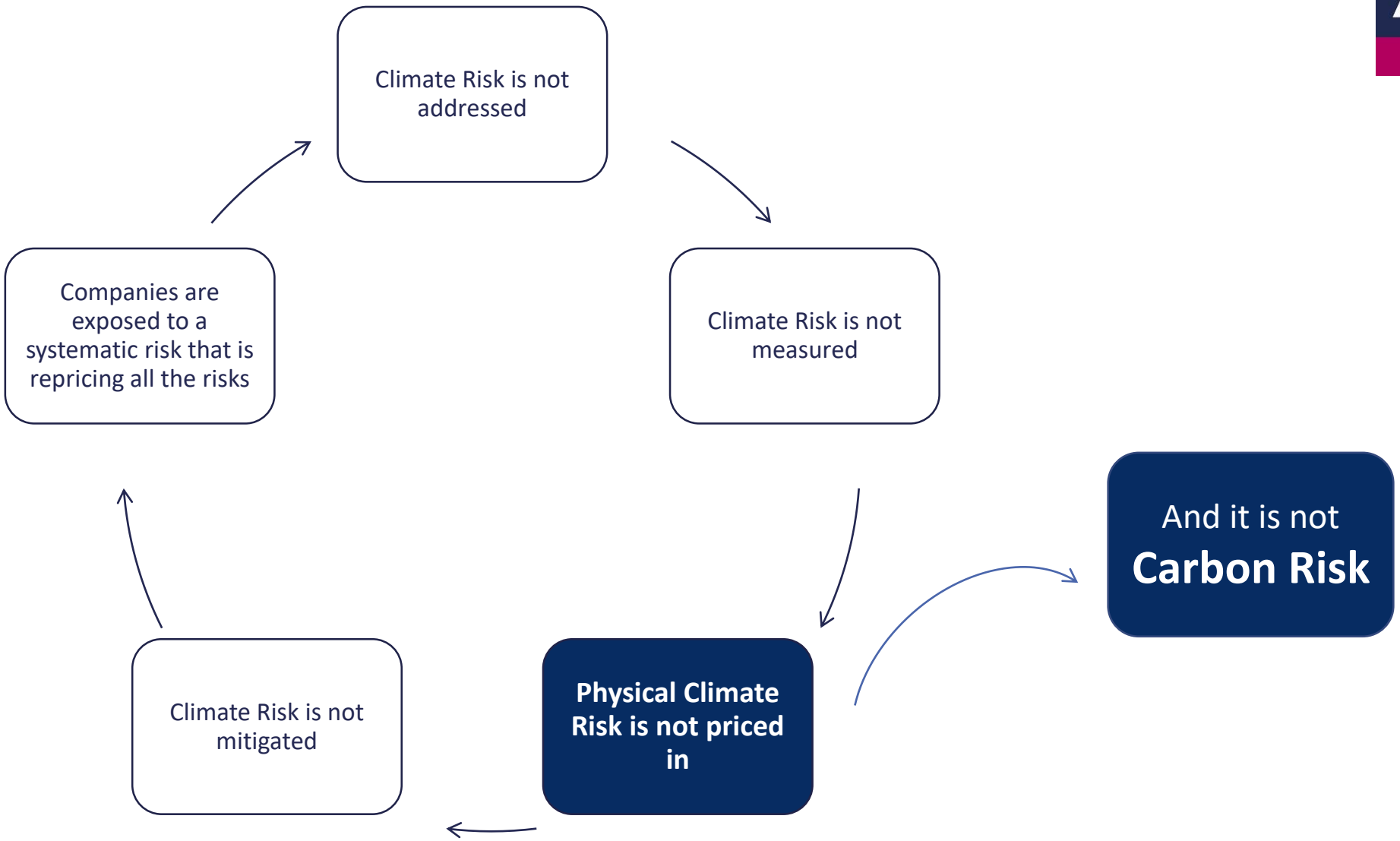
Intensel Limited

How – Part II

Pricing Climate Risk as Immediate Risk



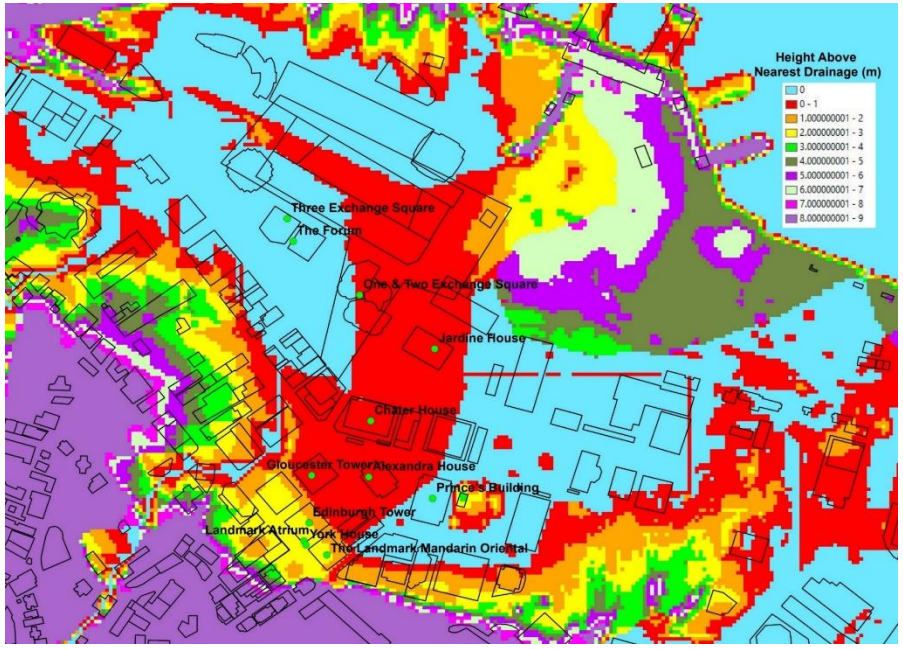
Physical Climate Value-at-Risk Components

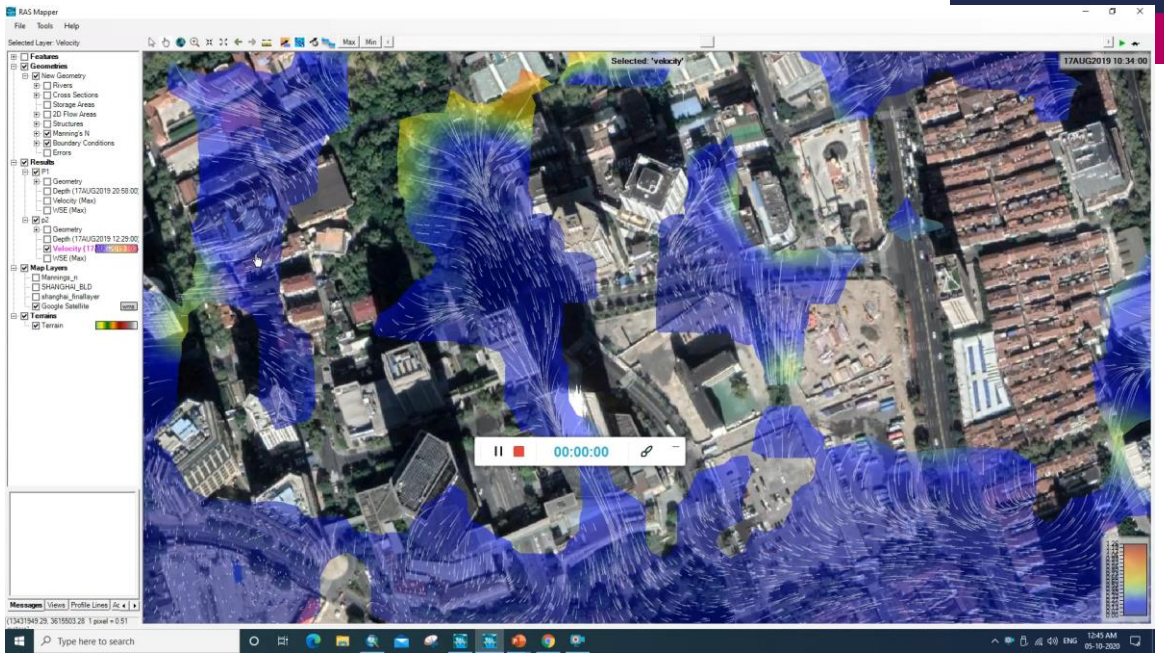
Climate Hazard

Exposure & Vulnerability

Expected Loss

Flood Risk in HK and Shanghai

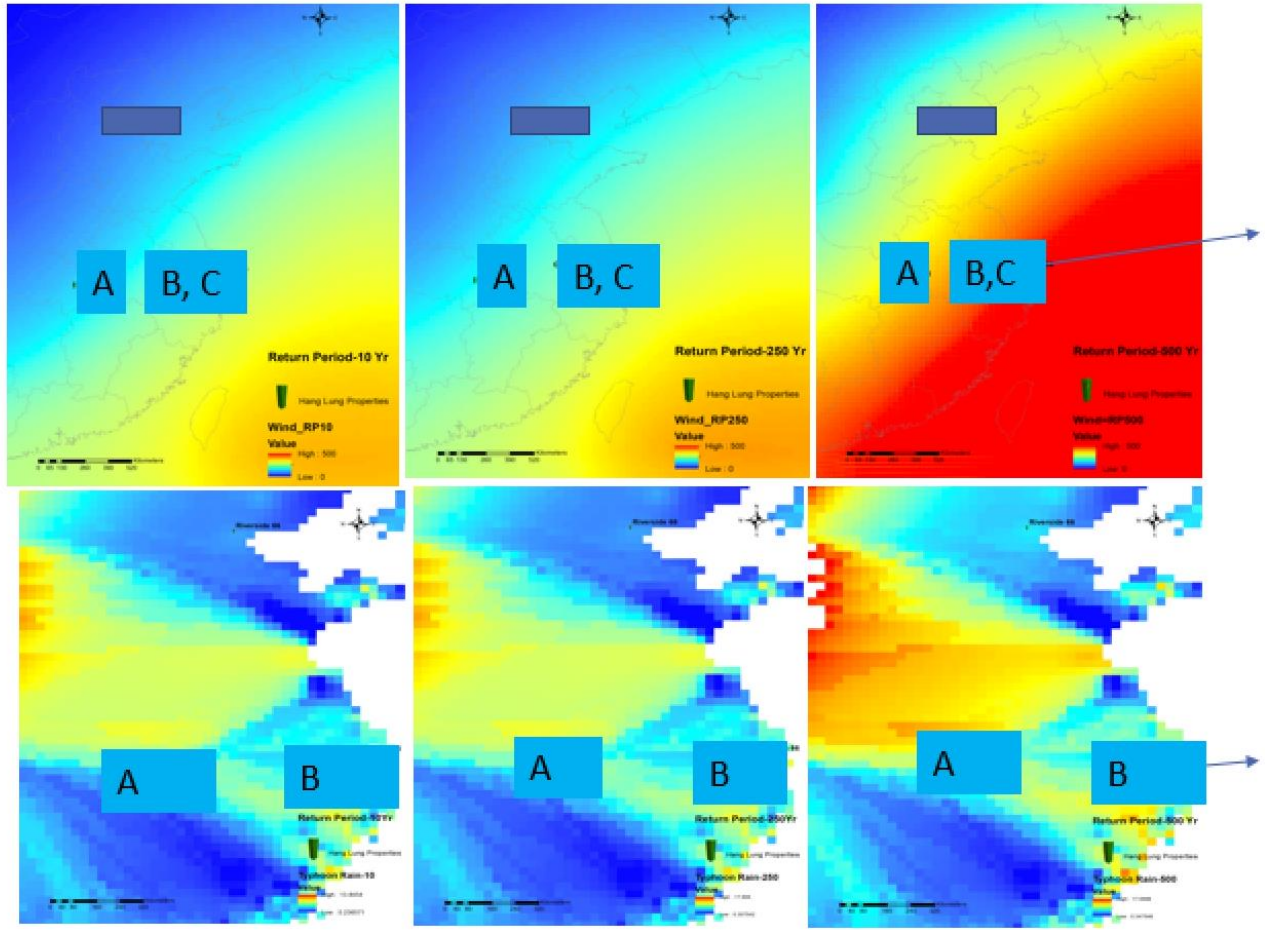




- Many expensive HK Properties are located at very high pluvial flood risk

- The patch of flood inundation can be seen for the Shanghai Property.
- The simulated flood depth found at the property is 0.23-0.25 m.

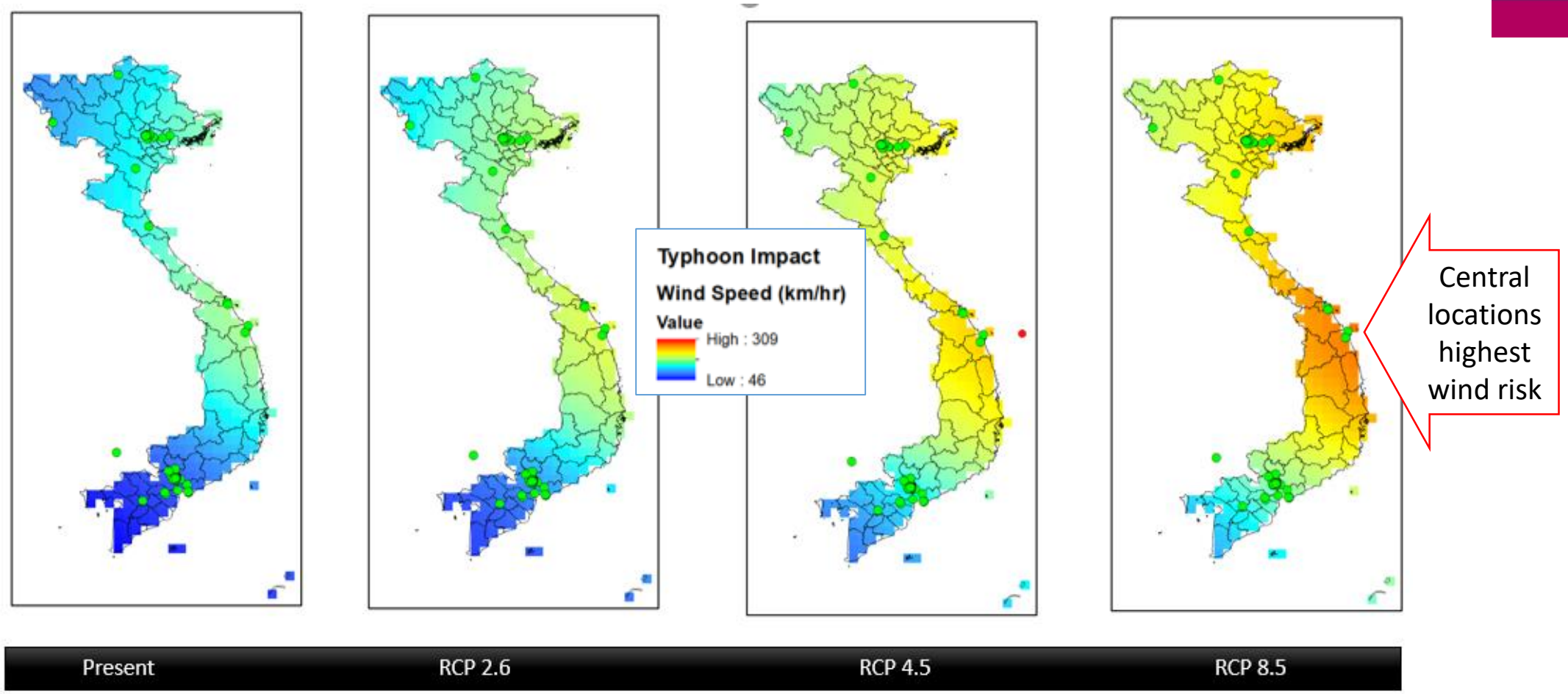
Typhoons In China Intensifying



- Wind intensifying to 297km/hr
- High Catastrophic Damage for B and C locations

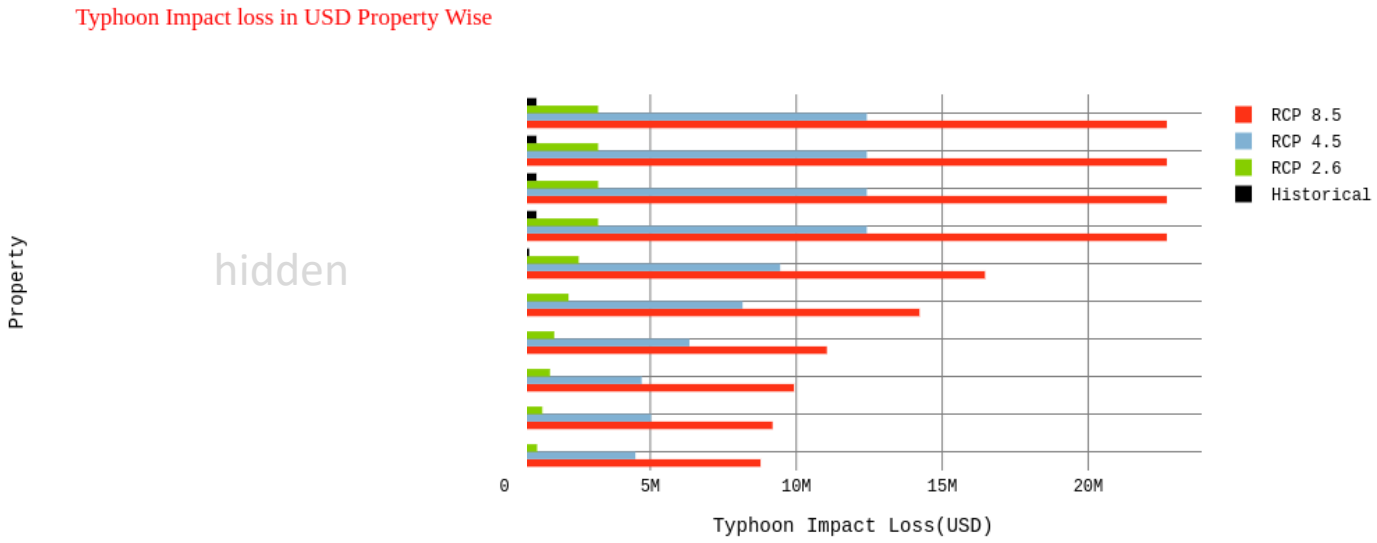
- Rainfall intensity almost double at 11.25m^3/hr
- Potential pluvial flood risk

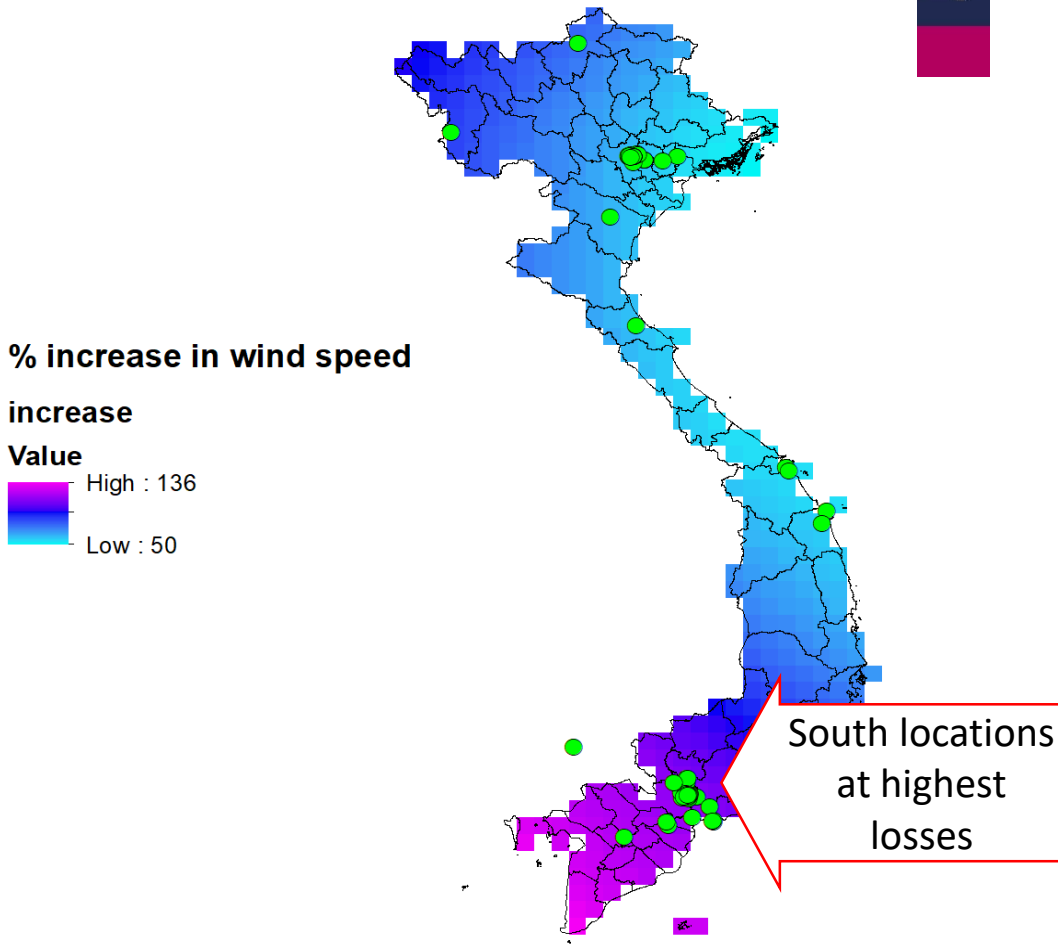
Typhoon Winds Will Become Dangerously High By 2030 (Cat 5)



Top 10 Companies with Highest Potential Typhoon Loss

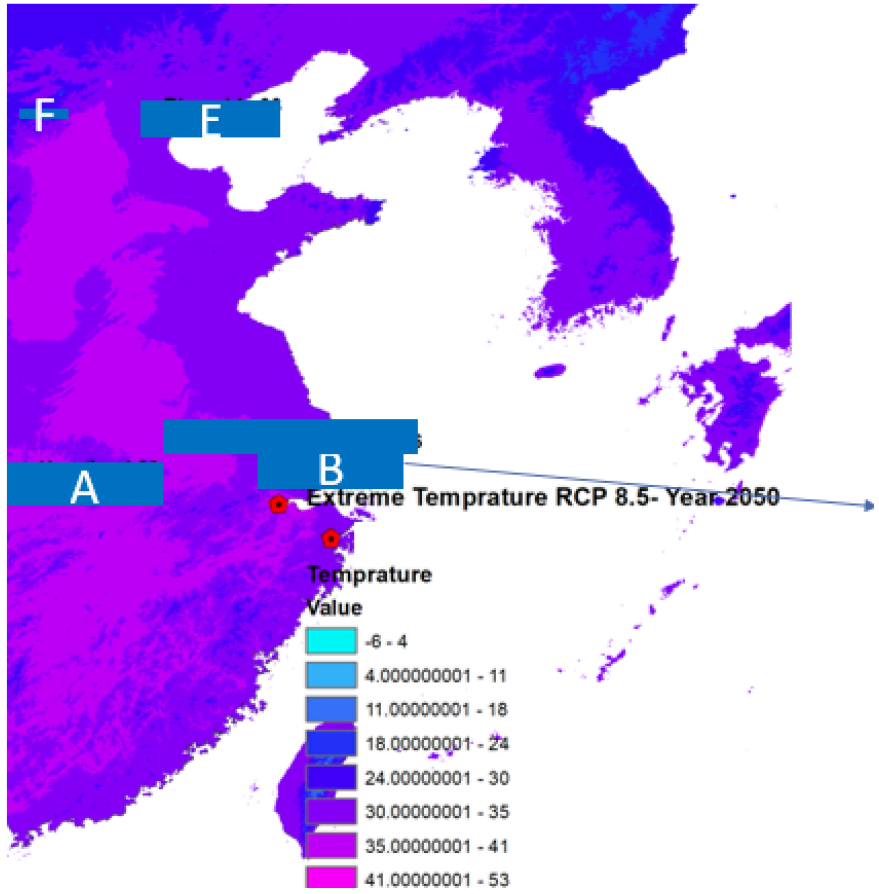
- Typhoon winds will get 136% stronger in south, while central Vietnam already experiencing strong typhoon wind will increase by 50%.
- Given the concentration of economic activity in south, and therefore high land price, damages will be highest in south.





% increase in wind speed from present to RCP 8.5

Extreme Temperature Predictions and Energy-related Costs



RCP 8.5, 2050 impacts on X Property in Shanghai

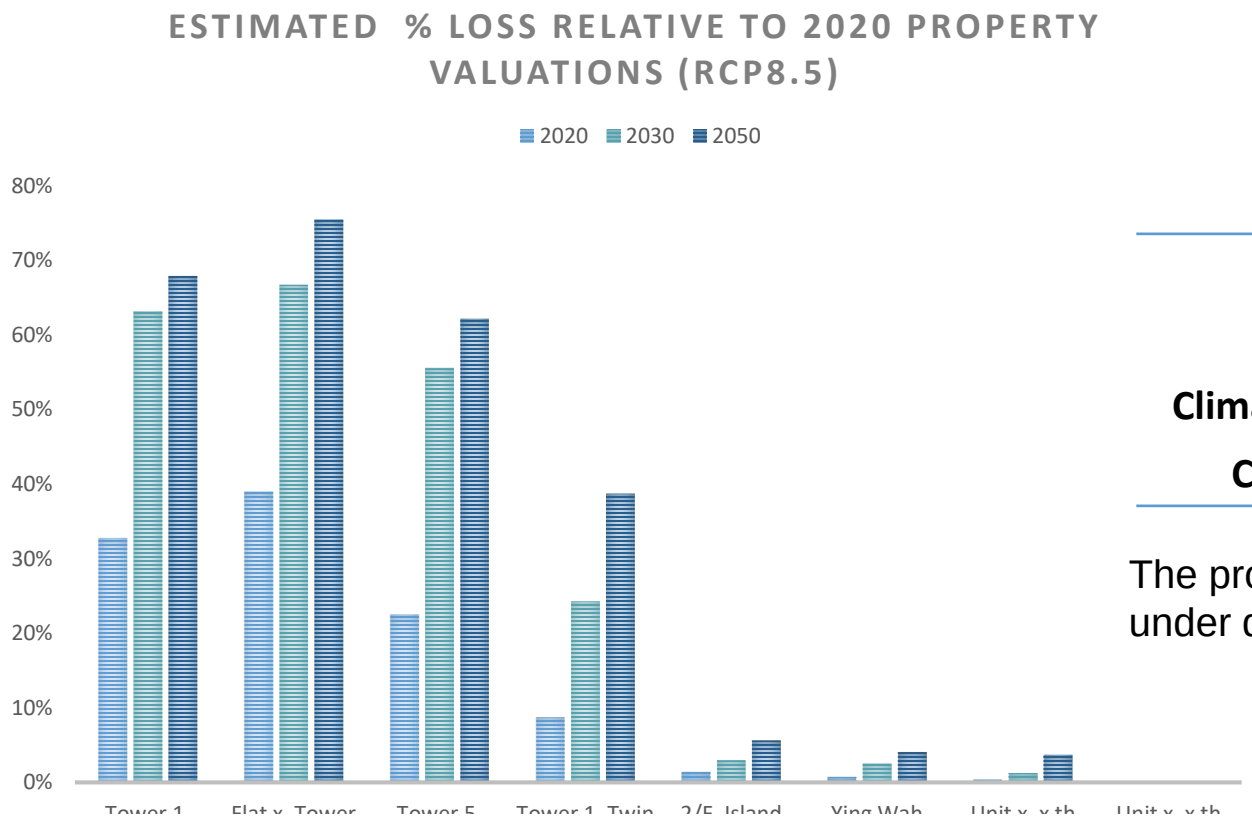
- Increase in annual mean temperature**: 2 °C**
- Increase in temperature of warmest quarter: **3.5 °C**
- Price of electricity per kWh: **0. 10 USD**

- **Annual Consumption increase by Electricity = 869,053 USD**

Climate Value-at-Risk and Pricing Climate Risk

Need for overall climate risk analysis with stress-test scenarios

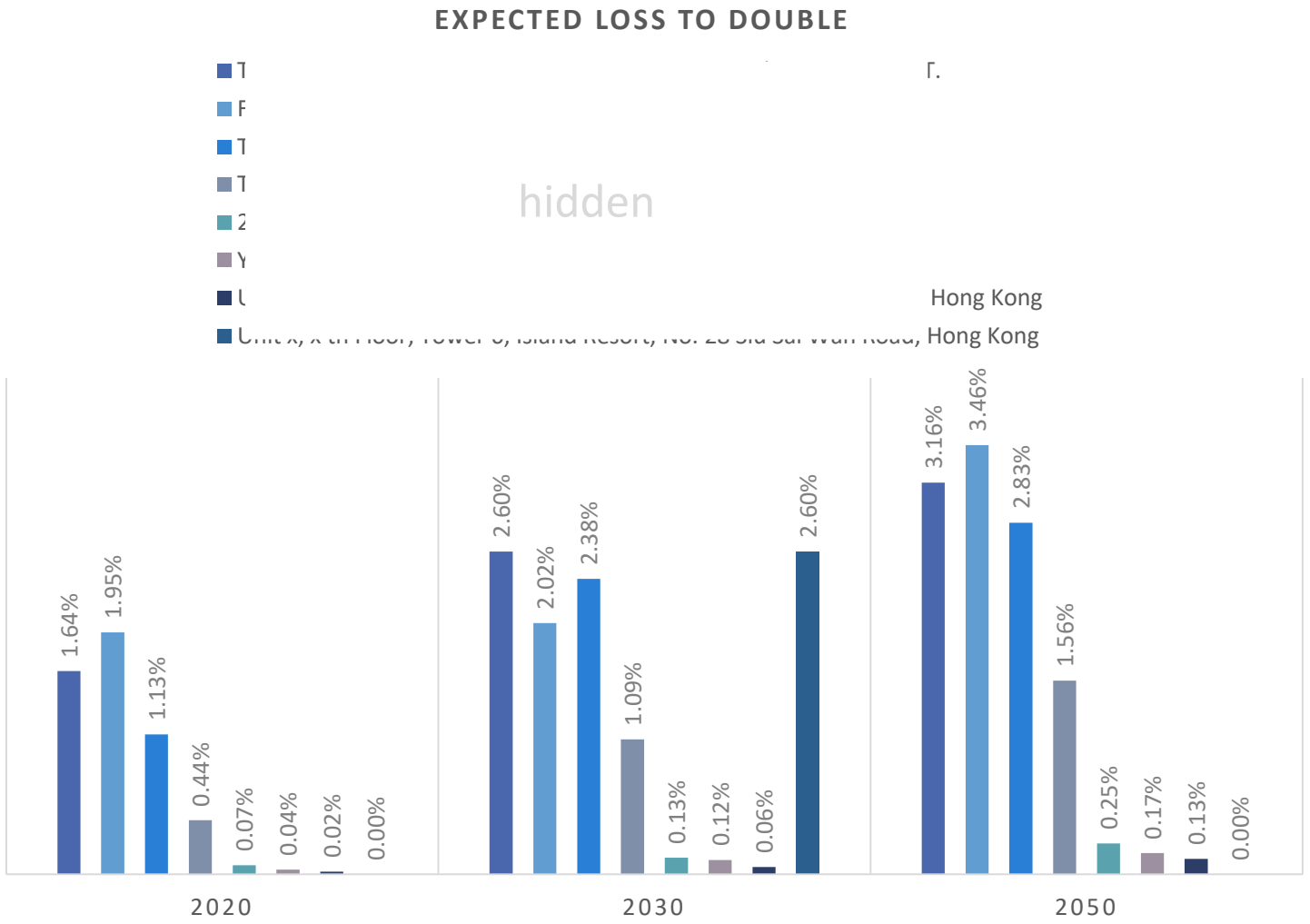
The Climate Value-at-risk (%Loss)



	2020 (baseline)	2030	2050
Climate Value-at-Risk	15%	23%	29%
Climate Value-at Risk (worst 4)	31%	42%	55%
Climate at Risk (the least 4)	6%	3%	3%

The projected dollar losses based on the flood and storm surge depth under different RCPs scenarios and in different time periods.

Is Climate Risk Priced In?



- The expected loss in 2030 and 2050 will increase by 60bps -160bps.
- The probability adjusted expected climate-related losses range between 0-3.46% of the exposure asset value.
- Assumed a 1/100 return period and only one event per year

Make The Projected Losses Relevant To The Company

Security	Loss in RCP8.5	Historical Loss	MarketCap	Increment in loss from Historical to RCP 8.5	Normalized for Market Capitalization
	$ 2,856,978	$ -	$ 2,463,083,000	$ 2,856,978	0.12%
	$ 103,971	$ -	$ 6,459,159,000	$ 103,971	0.00%
	$ 2,227,528	$ 67,421	$ 1,735,695,000	$ 2,160,106	0.12%
	$ 854,563	$ 19,567	$ 175,612,000	$ 834,996	0.48%
	$ 10,595,599	$ 513,538	$ 5,115,409,000	$ 10,082,062	0.20%
	$ 768,490	$ 37,231	$ 267,030,000	$ 731,259	0.27%
	$ 614,223	$ -	$ 305,343,000	$ 614,223	0.20%
	$ 31,145,446	$ 1,555,643	$ 1,813,482,000	$ 29,589,803	1.63%
	$ 478,630	$ 23,595	$ 77,959,000	$ 455,034	0.58%
	$ 38,792,652	$ 367,189	$ 6,049,025,000	$ 38,425,464	0.64%
	$ 7,616,207	$ 323,803	$ 404,157,000	$ 7,292,404	1.80%
	$ 16,949,937	$ 665,897	$ 4,551,937,000	$ 16,284,040	0.36%
	$ 7,277,663	$ 353,294	$ 328,692,000	$ 6,924,369	2.11%
	$ 26,458,135	$ 436,687	$ 594,690,000	$ 26,021,448	4.38%
	$ 10,278,473	$ 352,858	$ 2,301,446,000	$ 9,925,615	0.43%
	$ 1,862,905	$ 59,712	$ 2,162,255,000	$ 1,803,193	0.08%
	$ 9,652,917	$ 436,682	$ 2,624,075,000	$ 9,216,235	0.35%
	$ 20,320,700	$ 983,116	$ 2,557,554,000	$ 19,337,584	0.76%
	$ 3,278,008	$ 140,987	$ 714,402,000	$ 3,137,021	0.44%
	$ 2,014,472	$ 74,671	$ 202,100,000	$ 1,939,801	0.96%
	$ 37,906,330	$ 837,784	$ 5,101,391,000	$ 37,068,547	0.73%
	[illegible]	[illegible]	$ 3,461,629,000	$ 630,259	0.02%
	$ 97,550,975	$ 4,465,825	$ 13,858,943,000	$ 93,085,149	0.67%
	[illegible]	[illegible]	$ 11,075,467,000	$ 38,852,902	0.35%
	$ 20,465,189	$ 602,429	$ 15,620,739,000	$ 19,862,760	0.13%
	$ 13,903,573	$ 388,610	$ 8,626,101,000	$ 13,514,962	0.16%
	$ 4,761,539	$ 177,265	$ 2,568,175,000	$ 4,584,274	0.18%
	$ 1,056,482	$ -	$ 2,657,701,000	$ 1,056,482	0.04%

This company has the most exposure to losses given its market capitalization

This company is most exposed to Typhoons and absolute $ losses

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Conclusions

Webinar Conclusions

- Climate risk builds upon, but is distinct from ESG investing
- Climate risk is systematic risk and implies significant dollar losses
- Growing legal and regulatory consensus that material climate-related factors must be considered and managed by managers
- For asset managers to take action towards climate-related risk, we need to enable solutions by building out processes, investment strategies and systems to Navigate the Climate Journey – and Design Your Portfolio Playbook (Strategy & Policy | Governance | Investment & Risk Management | Report) and then implement Climate Risk Analytical Tools
- Get in touch today to learn more about Ogier Global ESG Services such as our regulatory fund manager assessment tools or Intensel AI tool.

Resources

FORMULAS FOR COMMON CLIMATE-RELATED RISK METRICS

METRIC	FORMULA
Weighted Average Carbon Intensity	$\sum_{n}^{i} \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} \times \frac{\text{company's GHG emissions}_i}{\text{company's mUSD revenue}_i} \right)$
Carbon Footprint	$\frac{\sum_{n}^{i} \left(\frac{\text{current value of investment}_i}{\text{company's market capitalisation}_i} \times \text{company's GHG emissions}_i \right)}{\text{current portfolio value in mUSD}}$
Carbon Intensity	$\frac{\sum_{n}^{i} \left(\frac{\text{current value of investment}_i}{\text{company's market capitalisation}_i} \times \text{company's GHG emissions}_i \right)}{\sum_{n}^{i} \left(\frac{\text{current value of investment}_i}{\text{company's market capitalisation}_i} \times \text{company's mUSD revenue}_i \right)}$

DEFINITIONS:
Current value of investment$_i$: Market value of an amount of equity of a company i held in an investment portfolio
Current portfolio value: Market value of all the equities (or other financial instruments) held in an investment portfolio

Sources: TCFD (2017b), Natixis (2016), Raynaud et al. (2015), UNEP FI (2015)

Q&A

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