



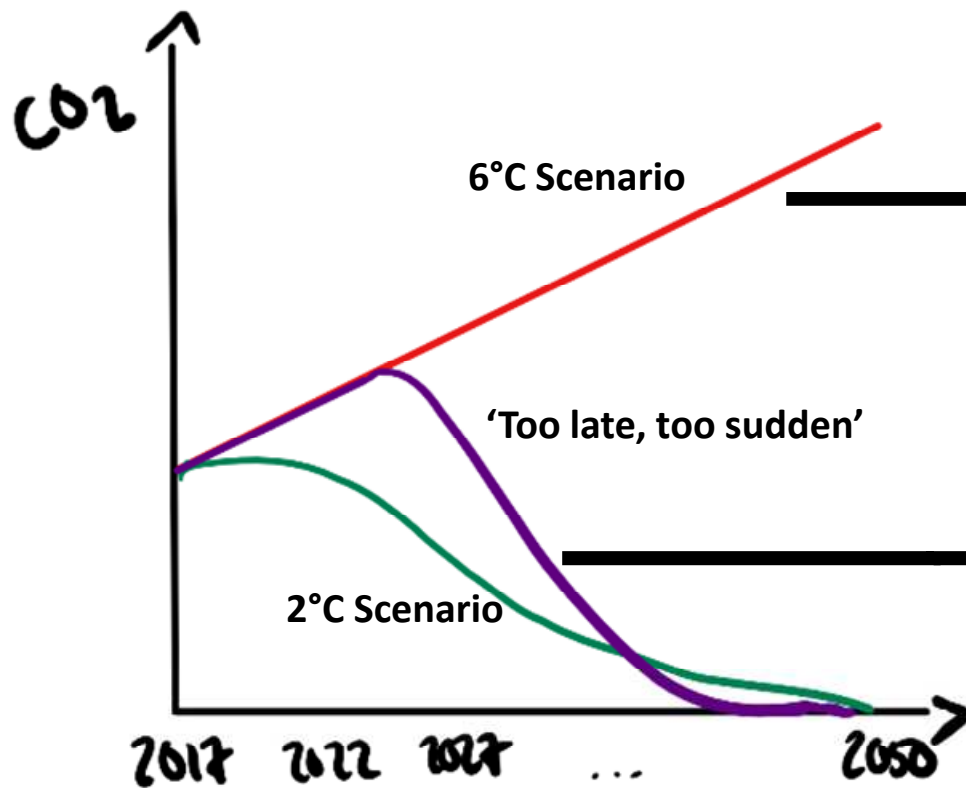
# PARIS AGREEMENT CAPITAL TRANSITION ASSESSMENT:

*Options for 2°C scenario analysis &  
regulatory monitoring*



Melbourne, Dec 2017  
Jakob Thomä, Director

# Are financial portfolios on a 'smooth' transition?

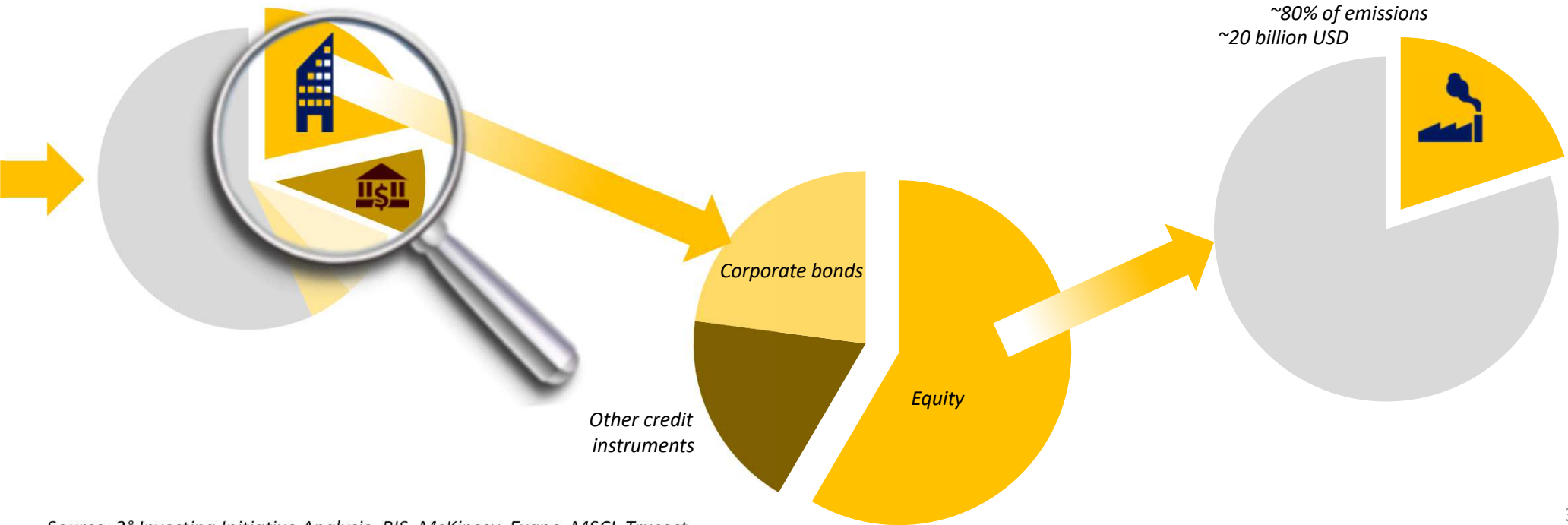


# Where is the problem?

## GLOBAL FINANCIAL ASSETS

## COMPANY-LINKED FINANCIAL ASSETS

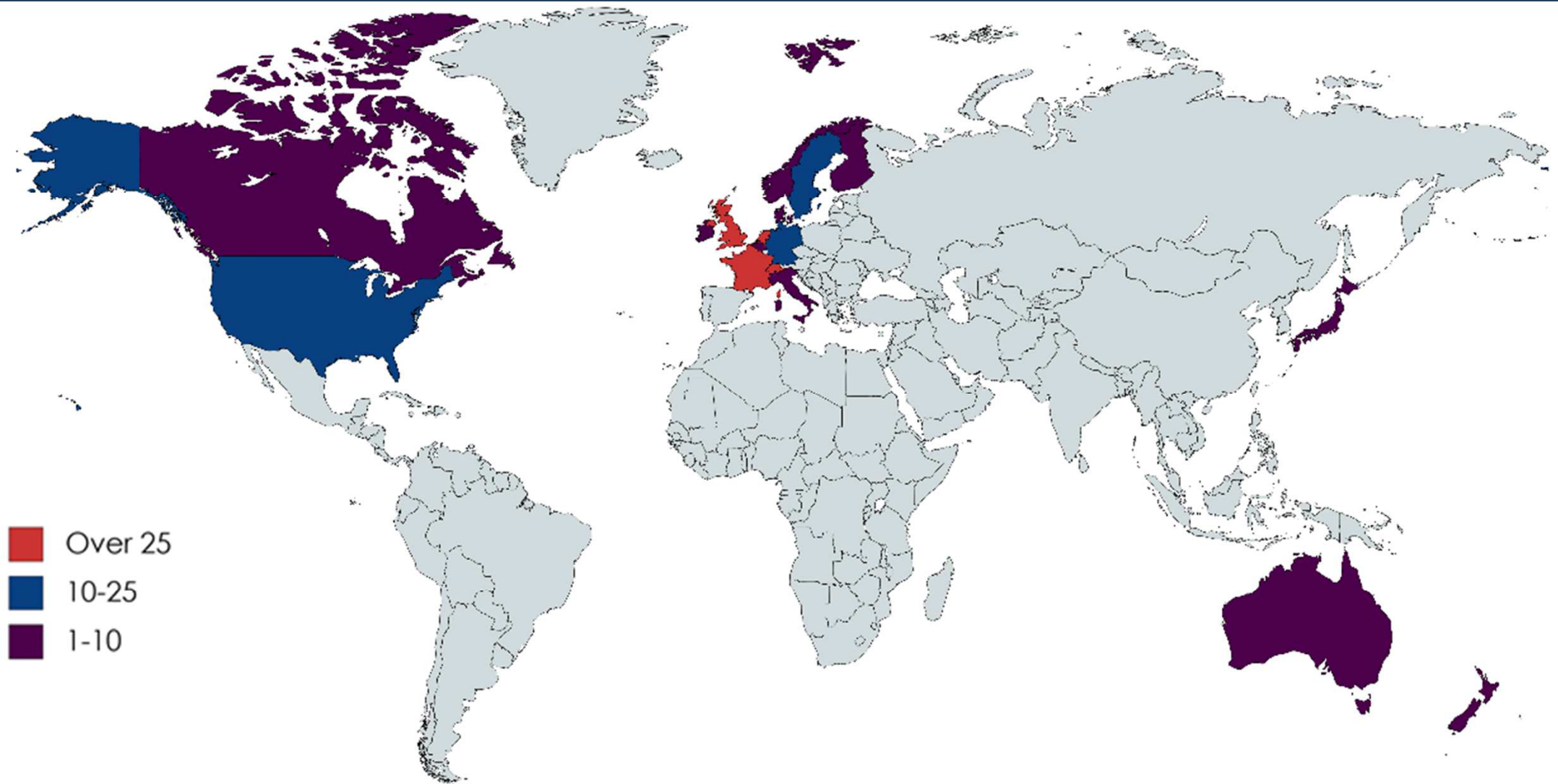
## CLIMATE RELEVANT ASSETS



Source: 2° Investing Initiative Analysis, BIS, McKinsey, Exane, MSCI, Trucost



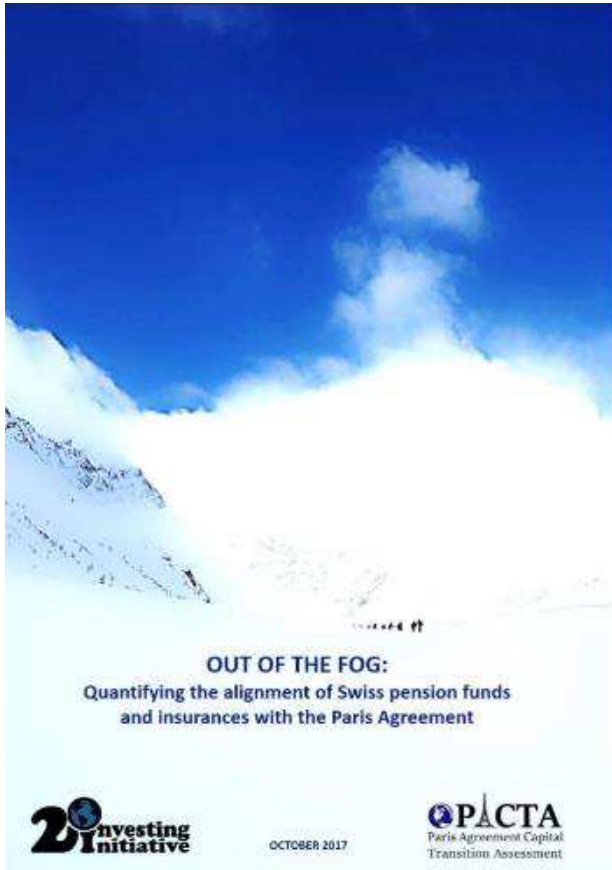
Applied by over 200 financial institutions to date...







...supervisors, and governments.



## Climate Alignment Pilot Tests



[Home](#)

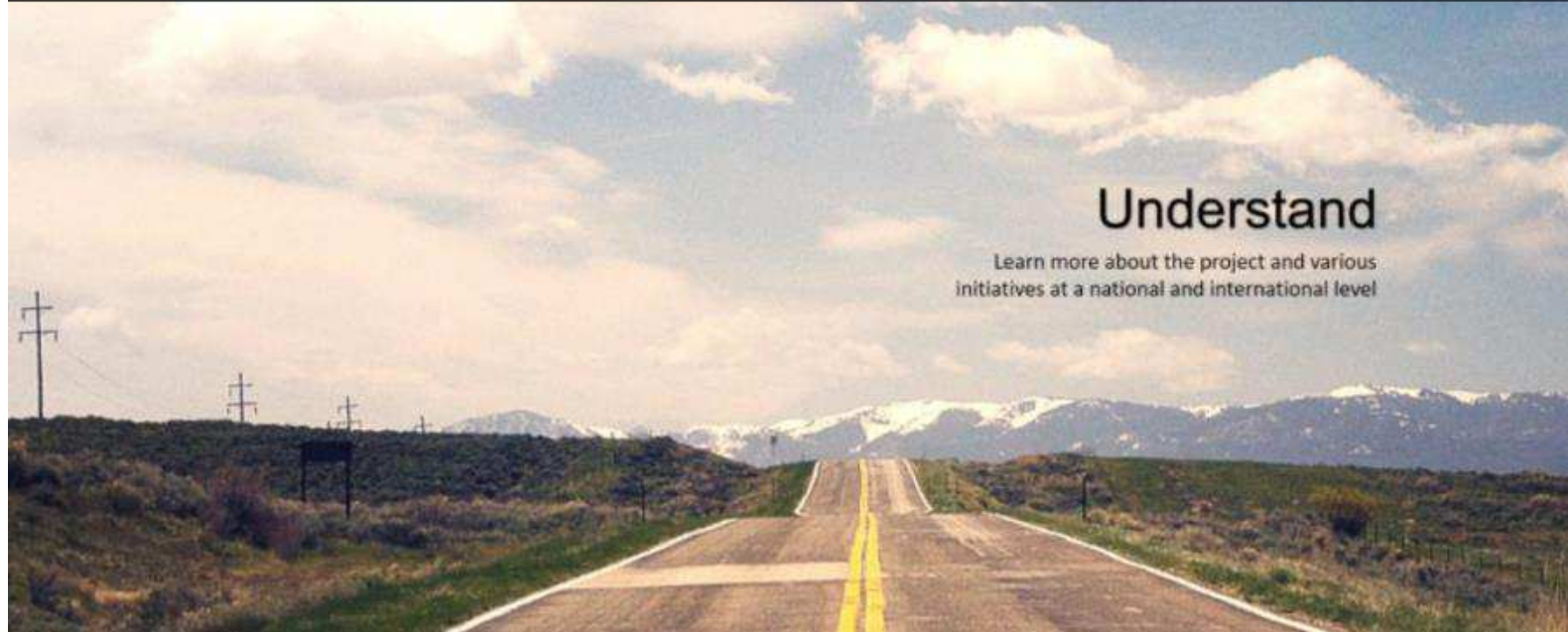
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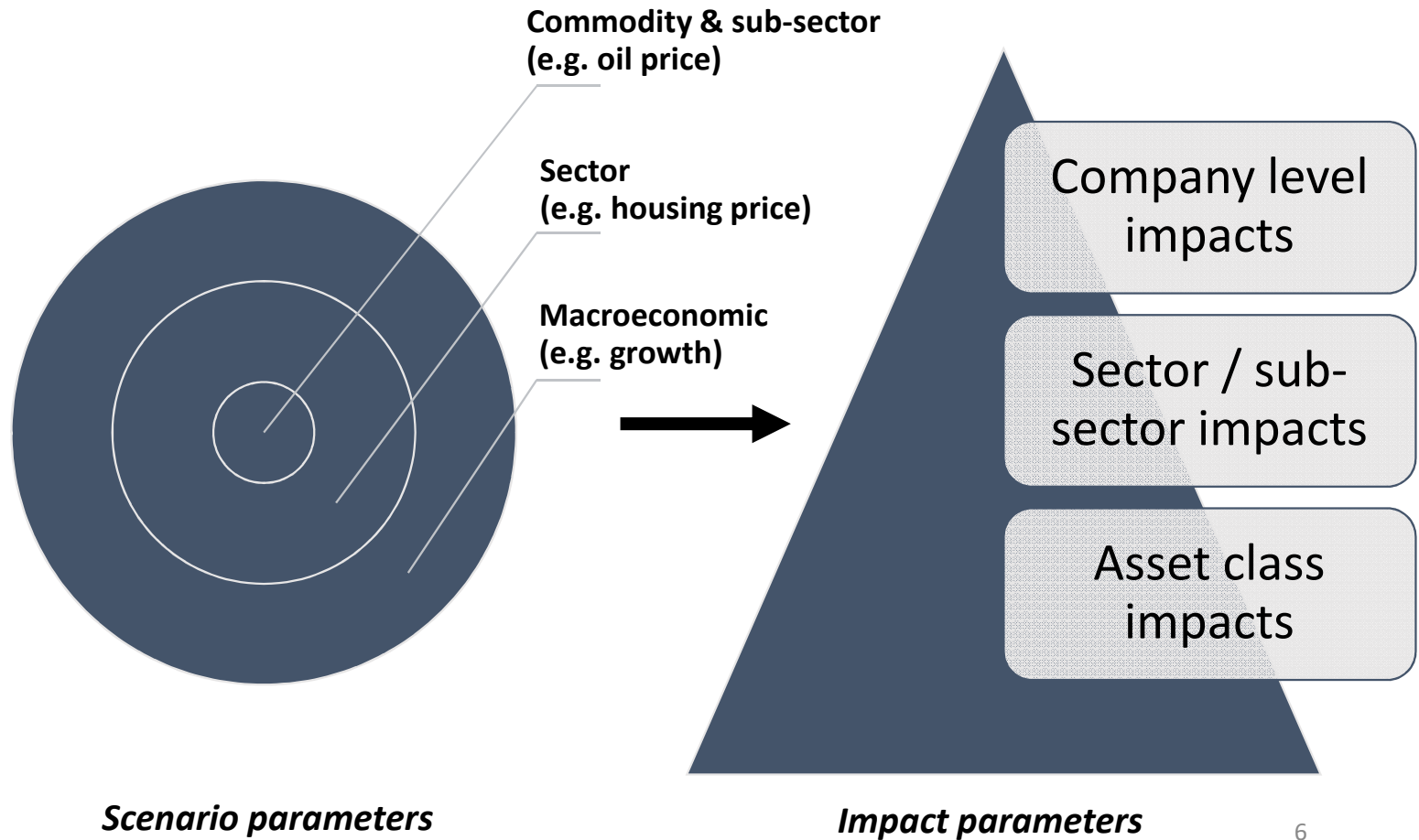
[Publications](#)

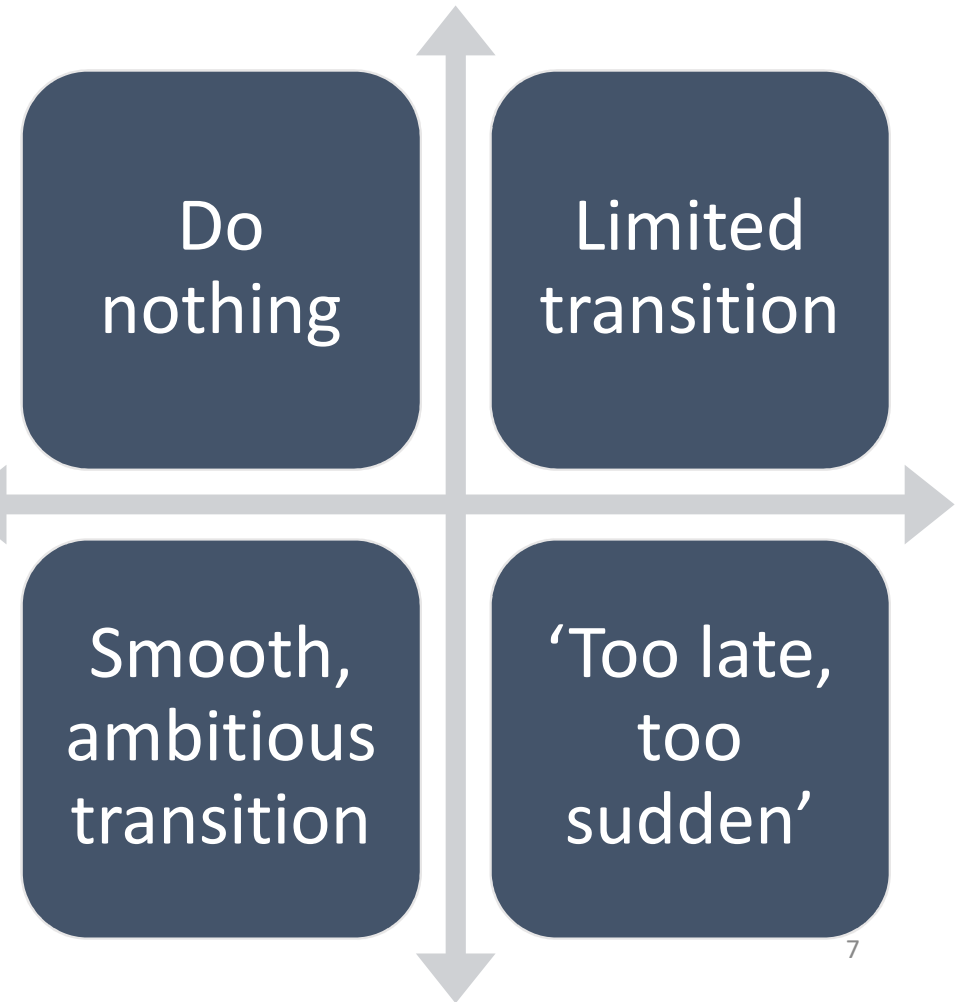
[FAQ](#)

[Contact Us](#)

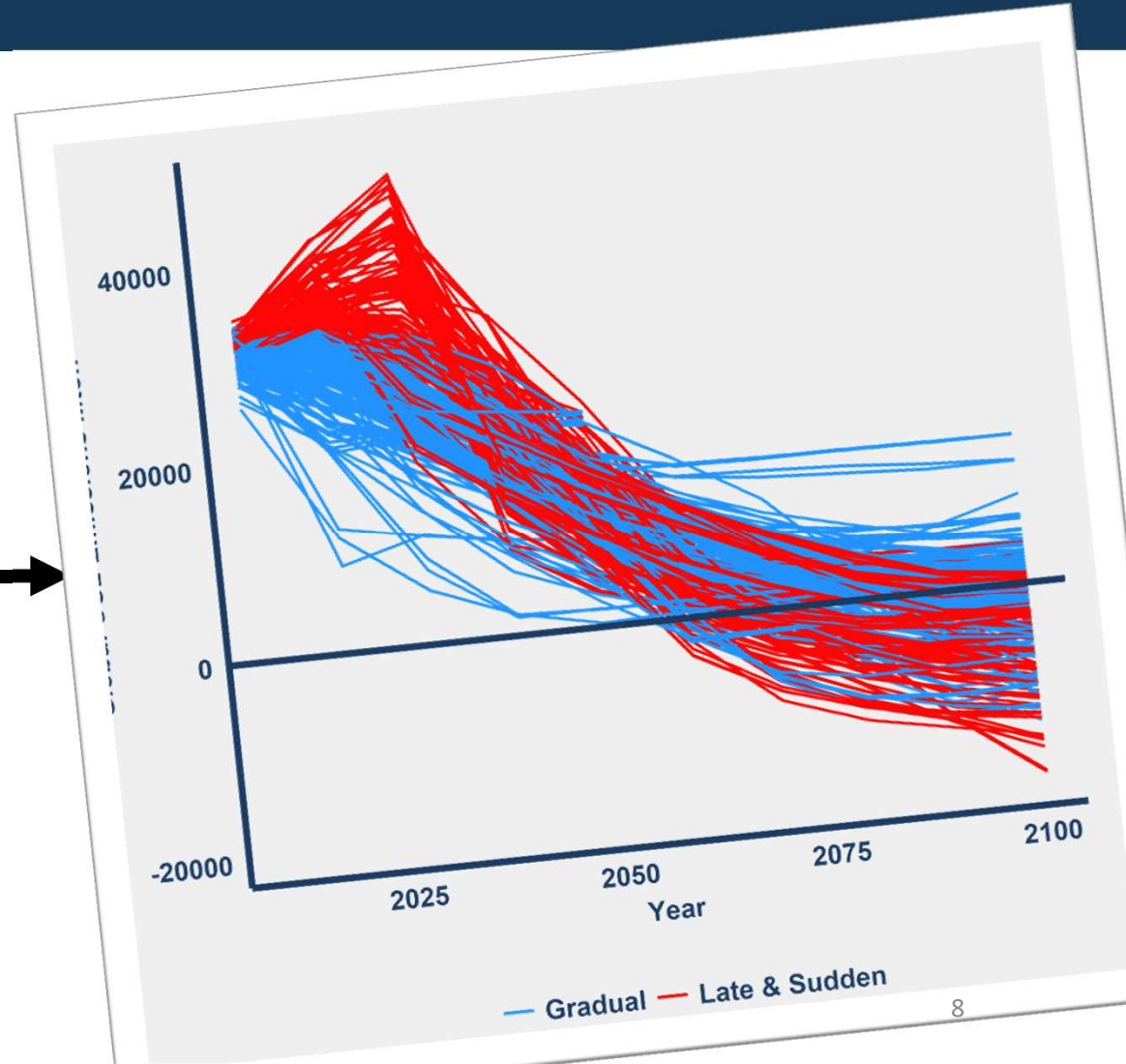


# THE CURRENT STRUCTURE OF STRESS-TEST SCENARIOS

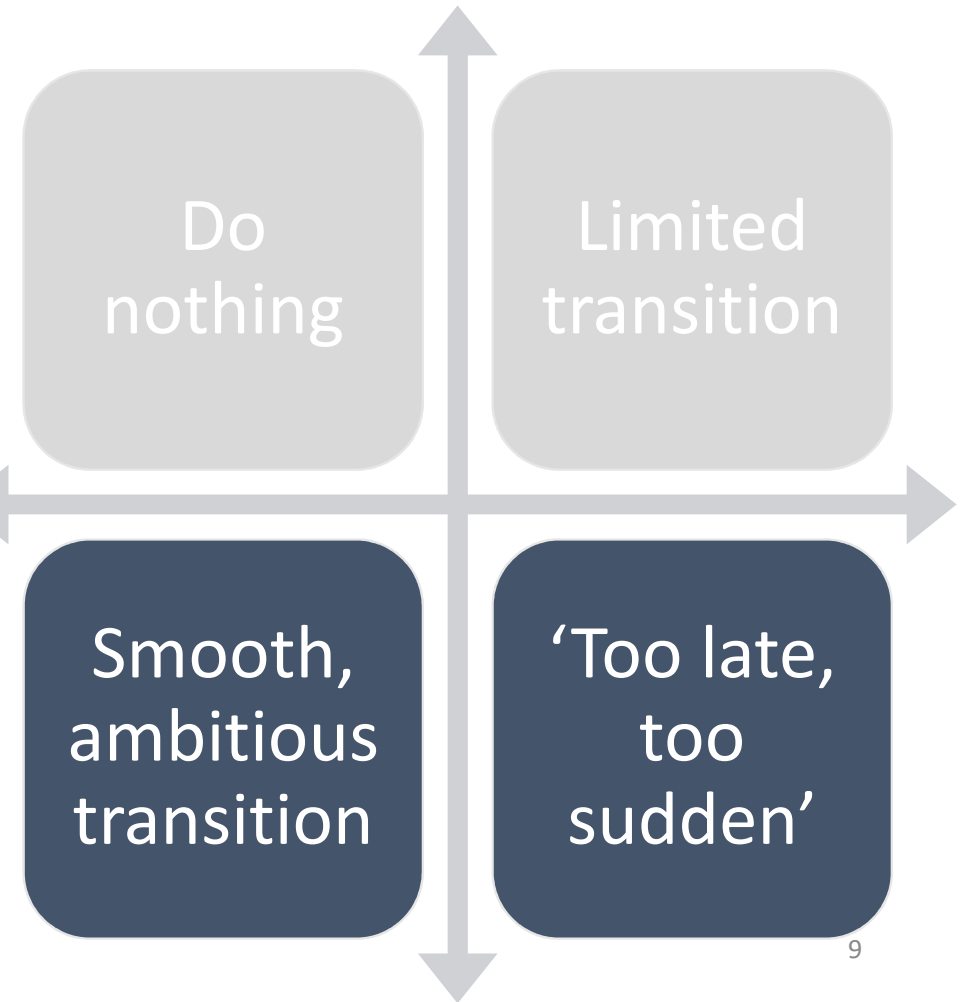
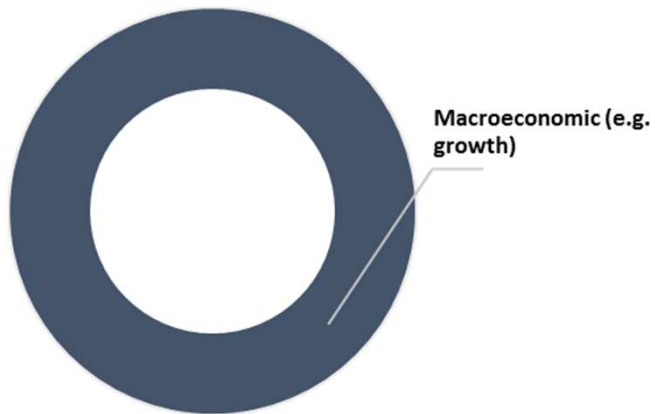


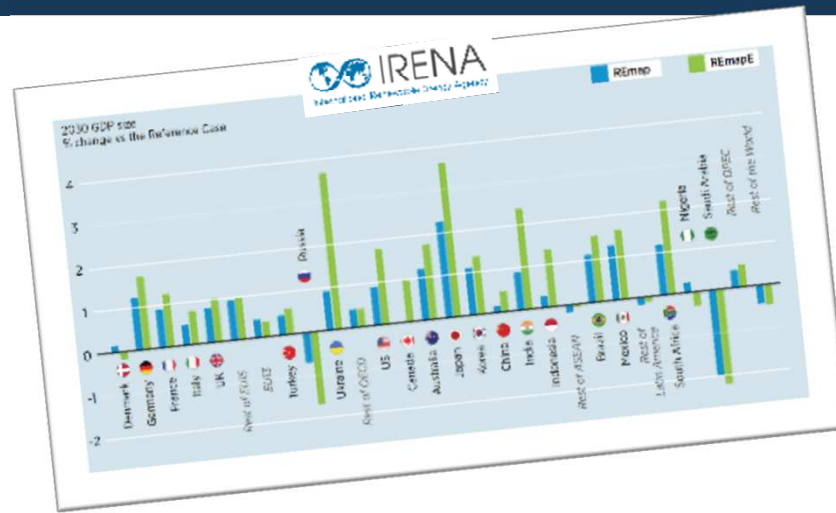


# THE CURRENT STRUCTURE OF STRESS-TEST SCENARIOS



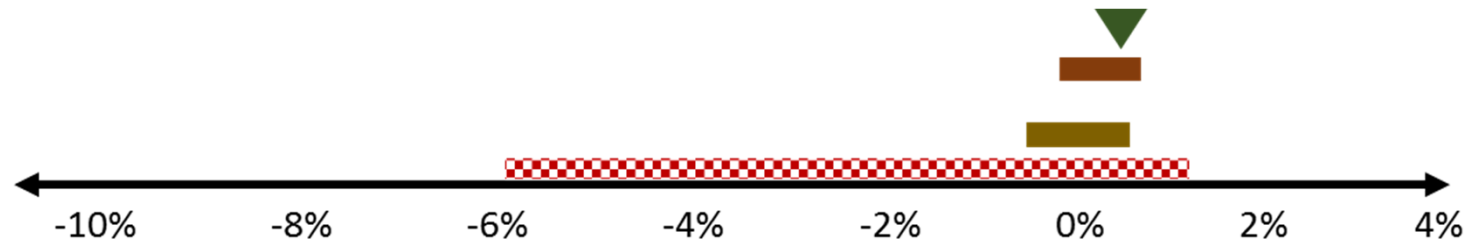






‘Too late, too sudden’

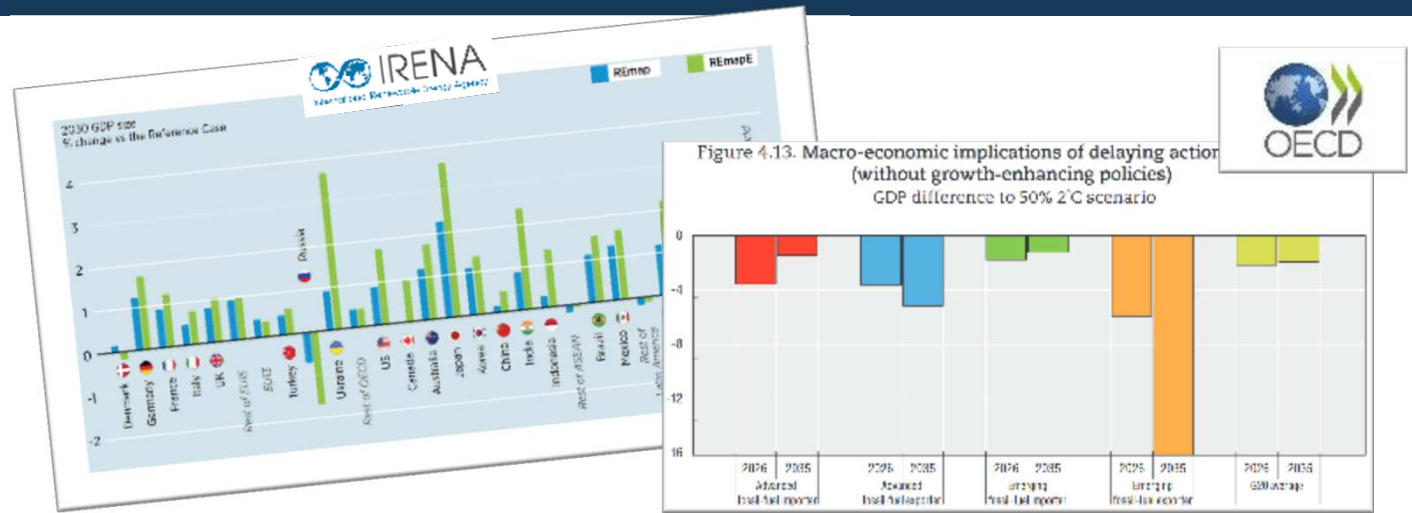
Macroeconomic (e.g. growth)



- Cambridge Two Degrees (2016)
- OECD Two Degrees (2017)
- IRENA REmapE (2017)
- ESRB Adverse Growth Scenario (*does not consider climate effects*) (2016)

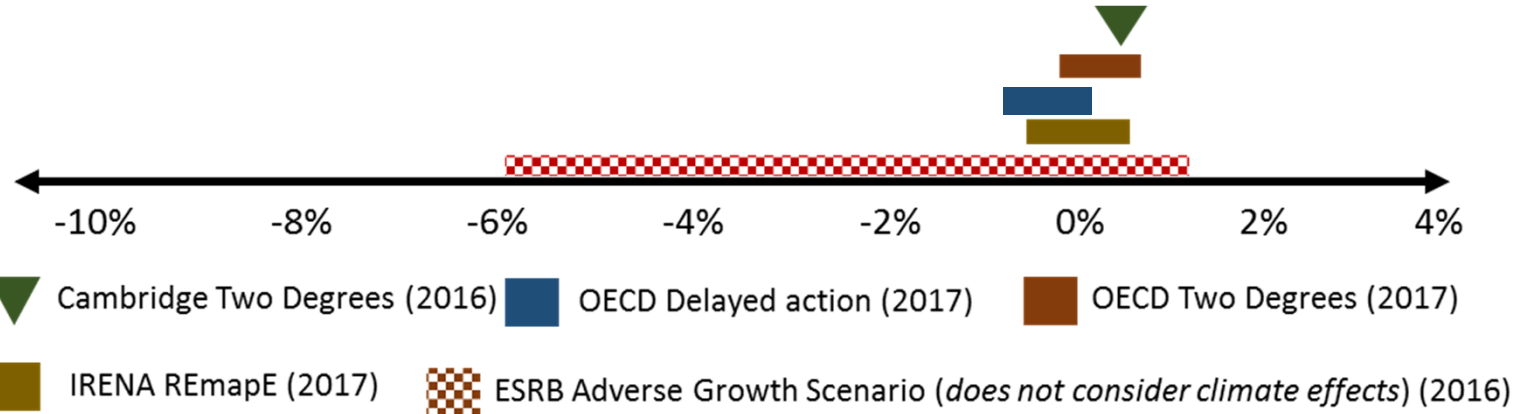


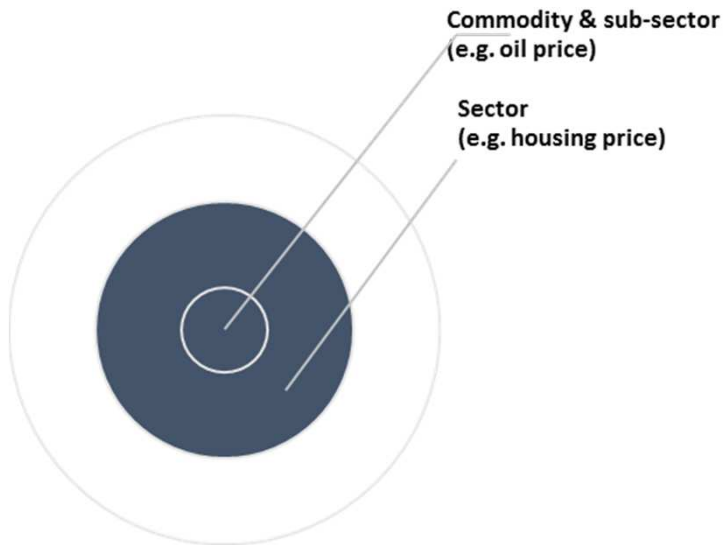
## TRANSITION RISKS IN FINANCIAL MARKETS



'Too late,  
too sudden'

Macroeconomic (e.g. growth)





Prices

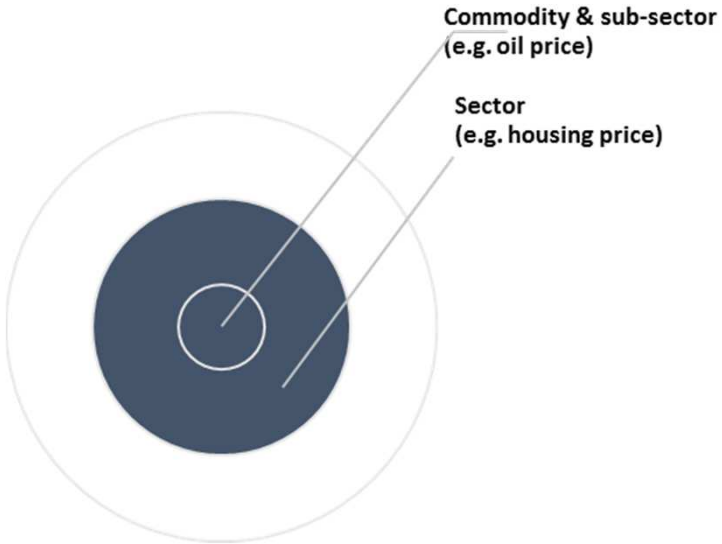


Policies



Production &  
technology  
trends



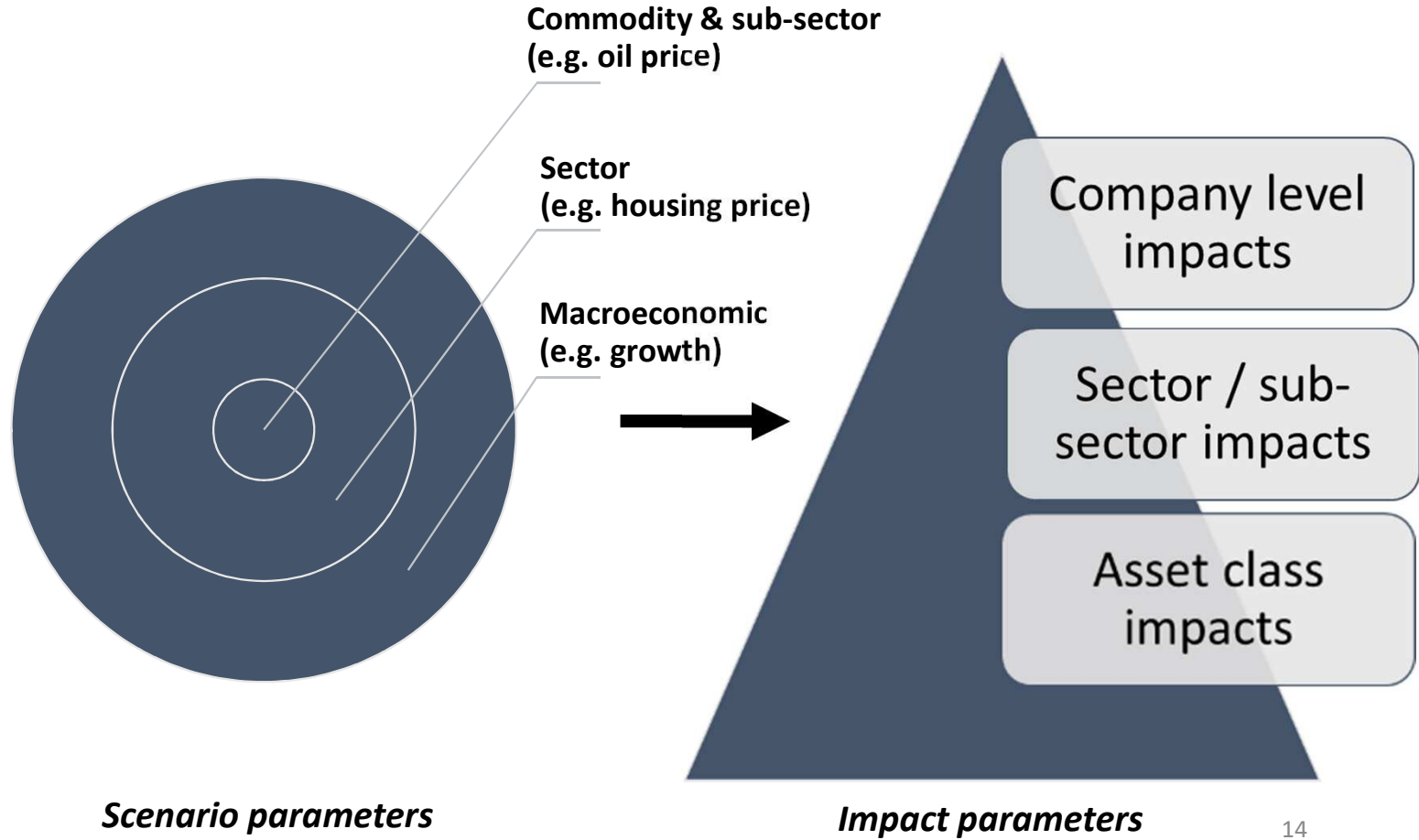


Prices

Policy

Technology & trends

Currently not in stress-test scenarios





## TRANSITION RISKS IN FINANCIAL MARKETS

Asset class  
impacts

**Table 4: Stock price shocks**

*(annual average percentage deviations from baseline levels)*

	2016	2017	2018
Belgium	-25.5	-24.3	-16.1
Bulgaria	-10.3	-12.4	-8.2
Czech Republic	-23.3	-20.9	-13.9
Denmark	-20.4	-22.0	-14.6
Germany	-24.6	-25.6	-17.0
Estonia	-14.1	-16.9	-11.2
Ireland	-25.6	-25.0	-16.6
Greece	-26.4	-23.6	-15.7
Spain	-26.0	-24.9	-16.6
France	-28.0	-26.5	-17.6
Croatia	-12.1	-14.7	-9.7
Italy	-28.8	-25.3	-16.8
Cyprus	-21.4	-23.1	-15.4
Latvia	-10.0	-10.3	-6.8
Lithuania	-12.2	-15.2	-10.1
Luxembourg	-22.1	-20.7	-13.7
Hungary	-17.4	-19.9	-13.2
Malta	-11.2	-13.8	-9.2
Netherlands	-25.5	-25.5	-16.9
Austria	-30.5	-25.4	-16.9
Poland	-19.4	-19.9	-13.2
Portugal	-24.0	-20.3	-13.5
Romania	-18.6	-22.1	-14.7
Slovenia	-9.8	-12.1	-8.0
Slovakia	-11.4	-13.4	-8.9
Finland	-23.0	-25.4	-16.9
Sweden	-23.9	-24.7	-16.4
United Kingdom	-25.3	-24.6	-16.3
<b>Euro area</b>	<b>-26.2</b>	<b>-25.2</b>	<b>-16.7</b>
<b>European Union</b>	<b>-25.4</b>	<b>-24.7</b>	<b>-16.4</b>

Note: the baseline assumes unchanged stock prices in 2016-18.



## Asset class effects more muted....

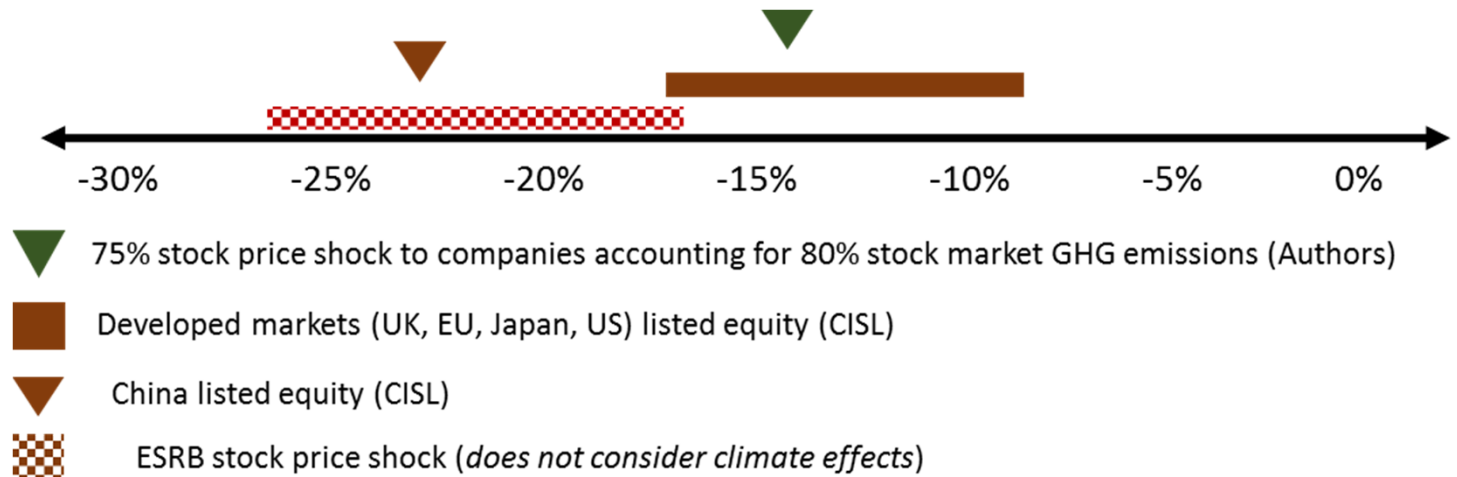
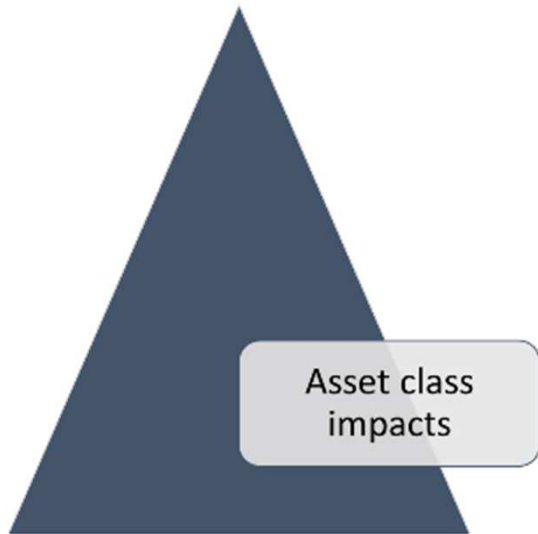


Table 4: Stock price shocks

annual average percentage declines from baseline to end

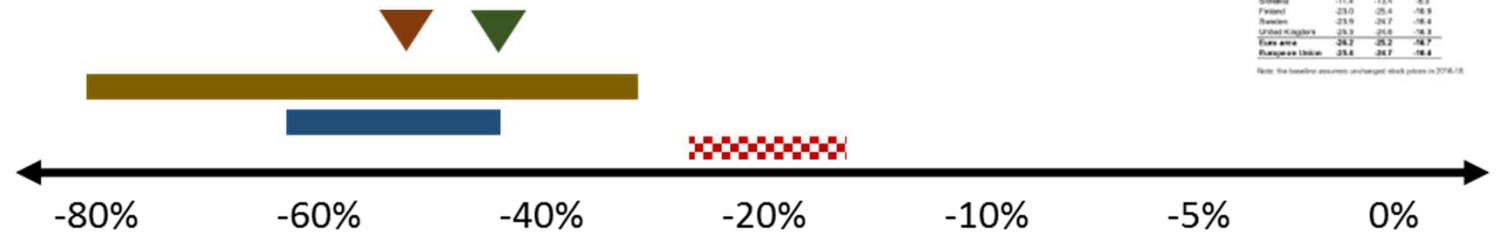
	2018	2017	2016
Belgium	-25.5	-24.3	-26.1
Bulgaria	-19.5	-12.4	-8.2
Czech Republic	-23.9	-20.9	-13.9
Denmark	-28.4	-22.0	-14.6
Germany	-24.6	-25.6	-17.8
Holland	-25.6	-25.0	-16.6
Ireland	-26.4	-23.6	-16.7
Spain	-26.0	-24.9	-16.4
France	-28.0	-26.5	-17.6
Croatia	-12.1	-14.7	-8.7
Italy	-26.9	-25.3	-16.8
Cyprus	-21.4	-23.1	-16.4
Lithuania	-13.0	-15.3	-8.5
Luxembourg	-22.2	-19.2	-16.1
Latvia	-22.1	-21.7	-13.7
Malta	-17.4	-19.9	-10.2
Hungary	-11.2	-13.8	-8.3
Netherlands	-25.5	-25.5	-16.9
Austria	-20.5	-25.4	-16.9
Poland	-19.4	-19.9	-13.2
Portugal	-24.0	-25.3	-13.5
Romania	-18.6	-22.1	-14.7
Slovenia	-8.6	-12.1	-8.5
Slovakia	-11.4	-13.4	-8.9
Finland	-23.0	-25.4	-16.9
Sweden	-23.9	-24.7	-16.4
United Kingdom	-23.9	-24.9	-16.9
EU average	-24.2	-25.2	-16.7
European Union	-23.4	-24.7	-16.4

Note: the baseline assumes unchanged stock prices in 2016/18





*Asset class effects more muted....  
But sectoral effects more prominent*



- IHS estimate oil price impact 2014-2015 (IHS 2016)
- HSBC
- CISL
- Bloomberg Carbon Risk Valuation Tool
- ESRB stock price shock (*at stock market level without considering climate effects*) (2016)

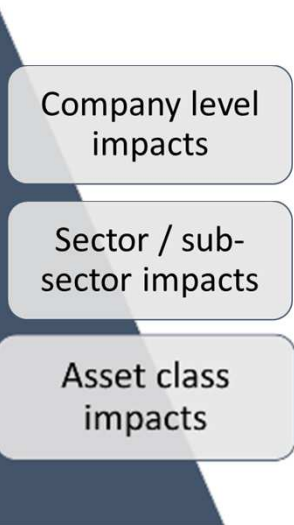


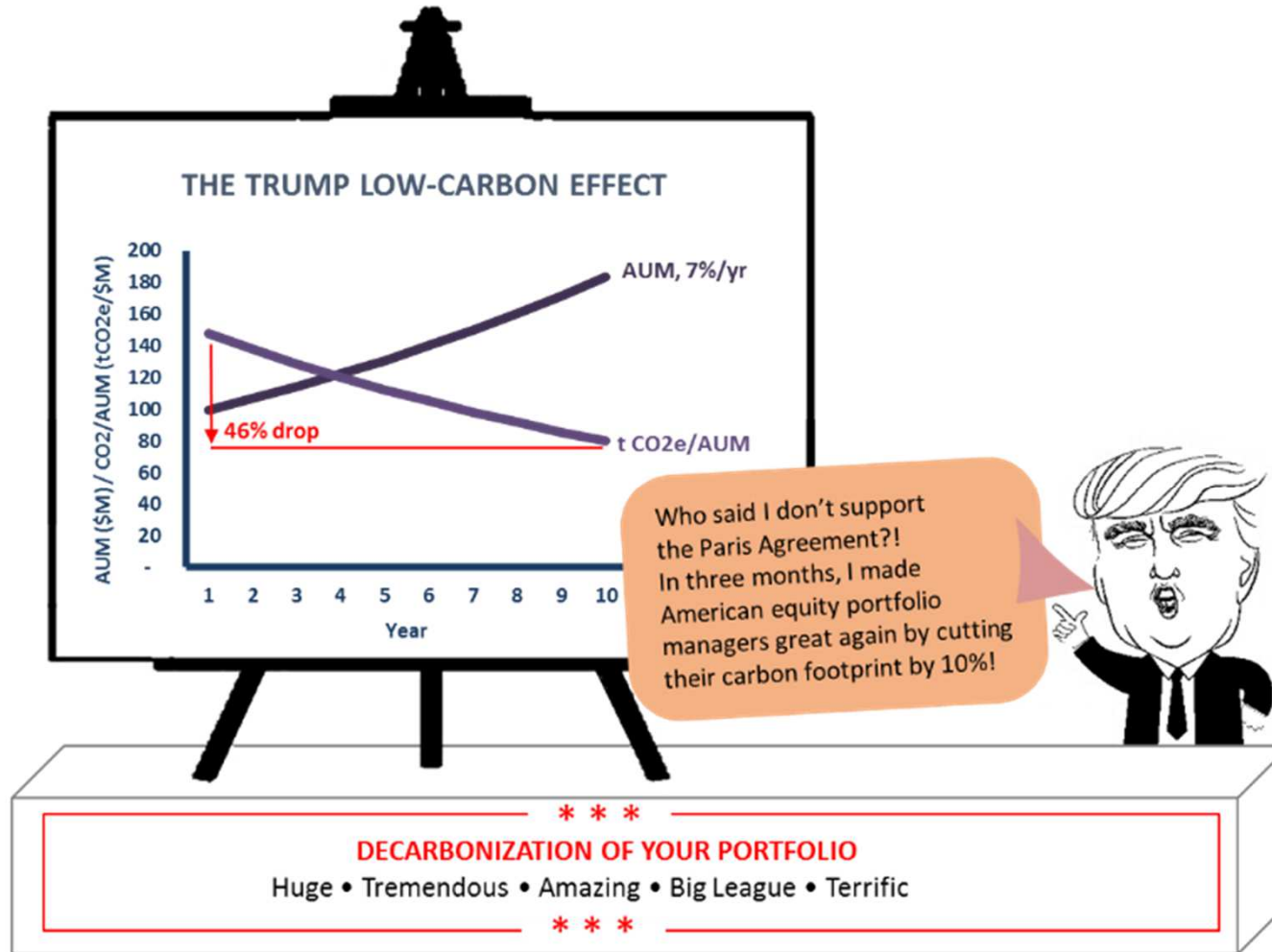
Table 4: Stock price shocks

Annual average percentage deviations from baseline world

	2016	2017	2018
Belgium	-5.5	-4.3	-5.1
Bulgaria	-19.5	-12.4	-8.2
Czech Republic	-23.9	-20.9	-13.9
Denmark	-29.4	-22.0	-14.8
Germany	-24.9	-25.8	-17.8
Holland	-14.1	-18.9	-11.2
Ireland	-25.6	-25.0	-16.8
Israel	-26.4	-23.6	-15.7
Spain	-28.0	-24.9	-16.4
France	-28.0	-25.5	-17.8
Croatia	-12.1	-14.7	-8.7
Italy	-23.8	-25.3	-16.8
Cyprus	-21.4	-23.1	-16.4
Lithuania	-19.0	-15.3	-8.5
Luxembourg	-22.2	-15.2	-10.1
Latvia	-22.1	-20.7	-13.7
Hungary	-17.6	-19.9	-13.2
Malta	-11.2	-13.8	-8.2
Netherlands	-25.5	-25.5	-16.9
Austria	-20.5	-25.4	-16.9
Poland	-19.4	-19.9	-13.2
Portugal	-24.0	-25.3	-13.5
Romania	-18.6	-22.1	-14.7
Slovenia	-8.6	-12.1	-8.5
Slovakia	-11.4	-13.4	-8.9
Finland	-23.0	-25.4	-16.9
Sweden	-23.9	-24.7	-16.4
United Kingdom	-23.9	-24.9	-16.9
Ukraine	-26.2	-26.2	-16.7
European Union	-23.4	-24.7	-16.4

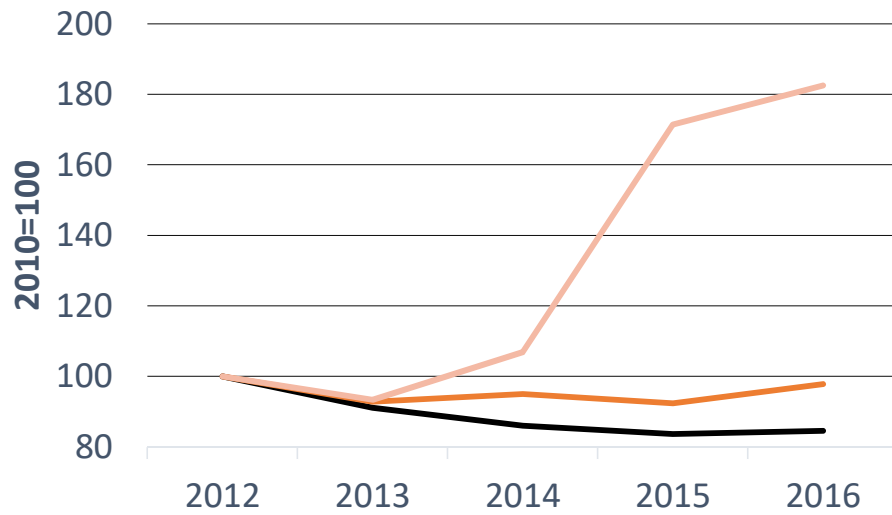
Note: The baseline assumes unchanged stock prices in 2014-15.

# FOOTPRINT ≠ CLIMATE FRIENDLINESS



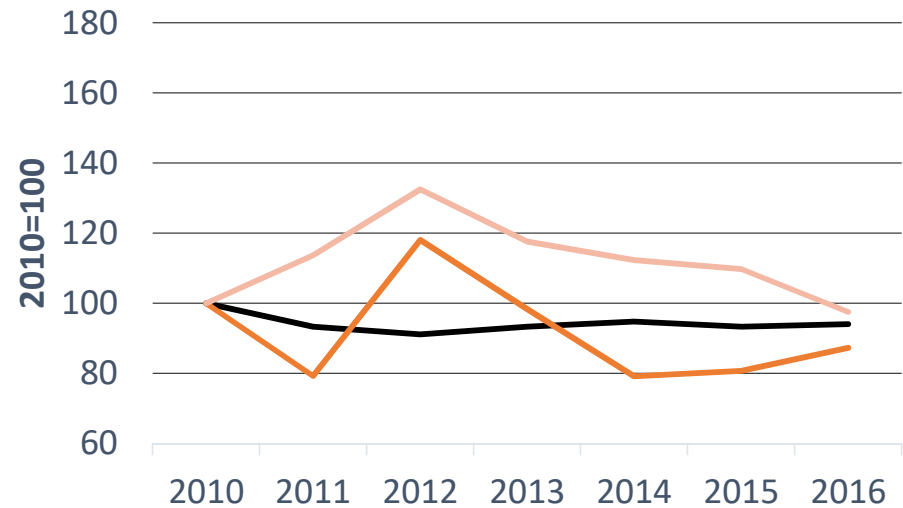
# FOOTPRINT ≠ CLIMATE FRIENDLINESS

## RWE



- Reported GHG emissions
- Revenue intensity (GHG emissions / revenue)
- Enterprise value intensity (GHG emissions / enterprise value)

## ExxonMobil

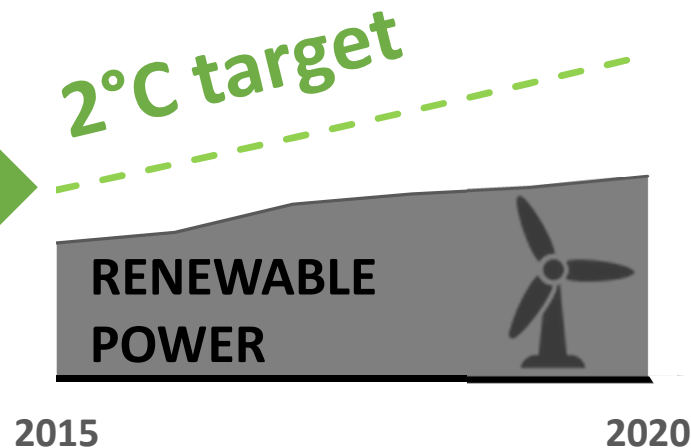
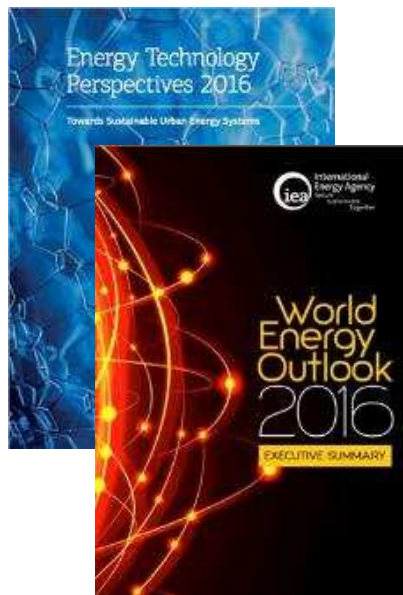


- Reported GHG emissions
- Revenue intensity (GHG emissions / revenue)
- Enterprise value intensity (GHG emissions / enterprise value)

## CORE PRINCIPLE: FAIR SHARE

10% of market share

10% of deployment efforts



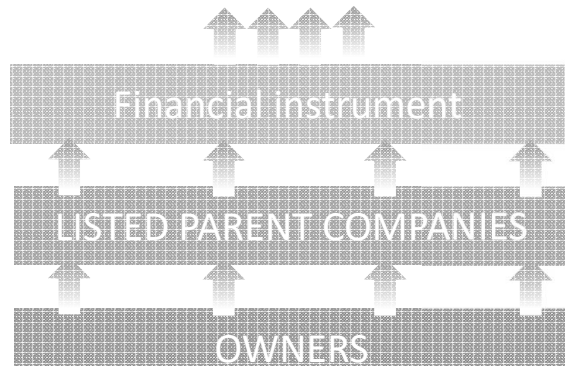
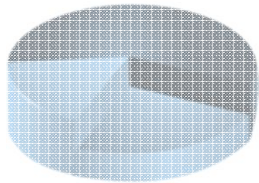
Developed by the European consortium SEI Metrics

(2Dii, Frankfurt School of Finance & Management, CNRS, Kepler Market, CDP, ...)

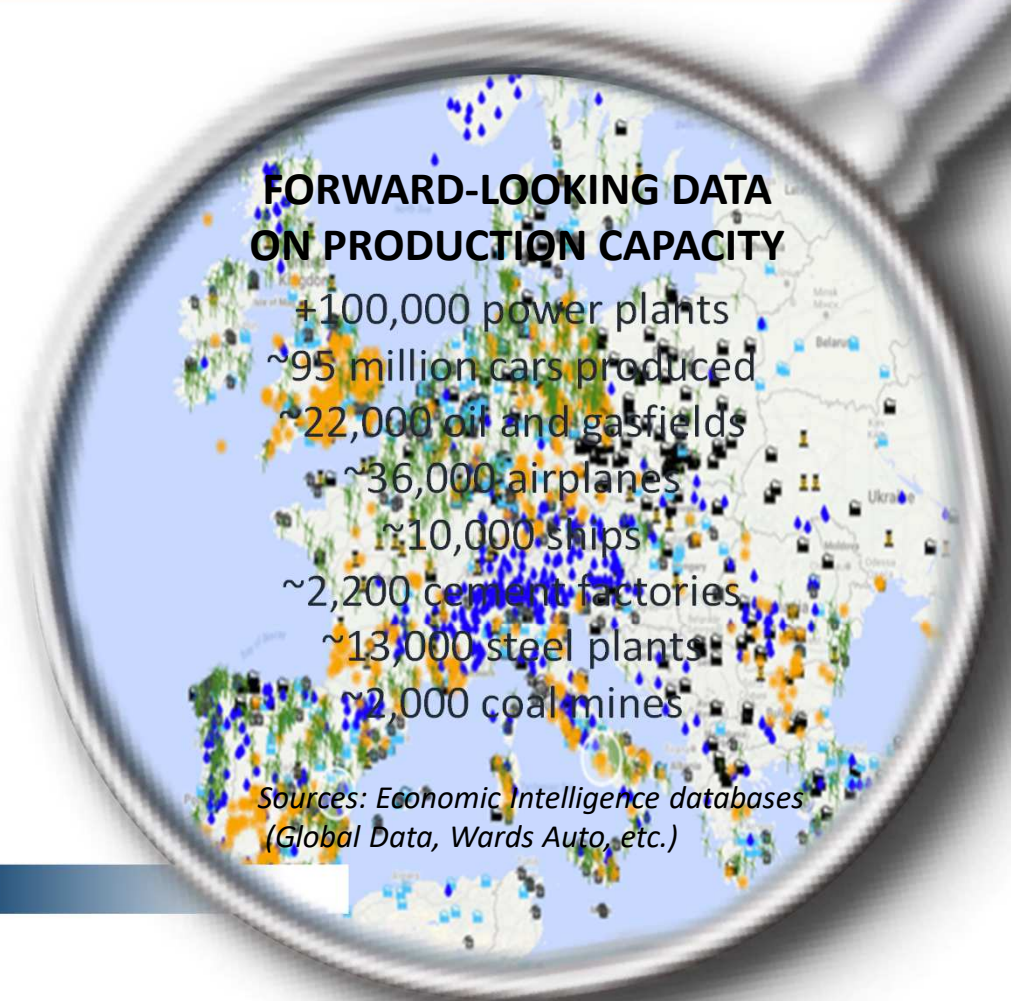


# LINKING REAL ASSETS TO FINANCIAL ASSETS

## INVESTMENT PORTFOLIO

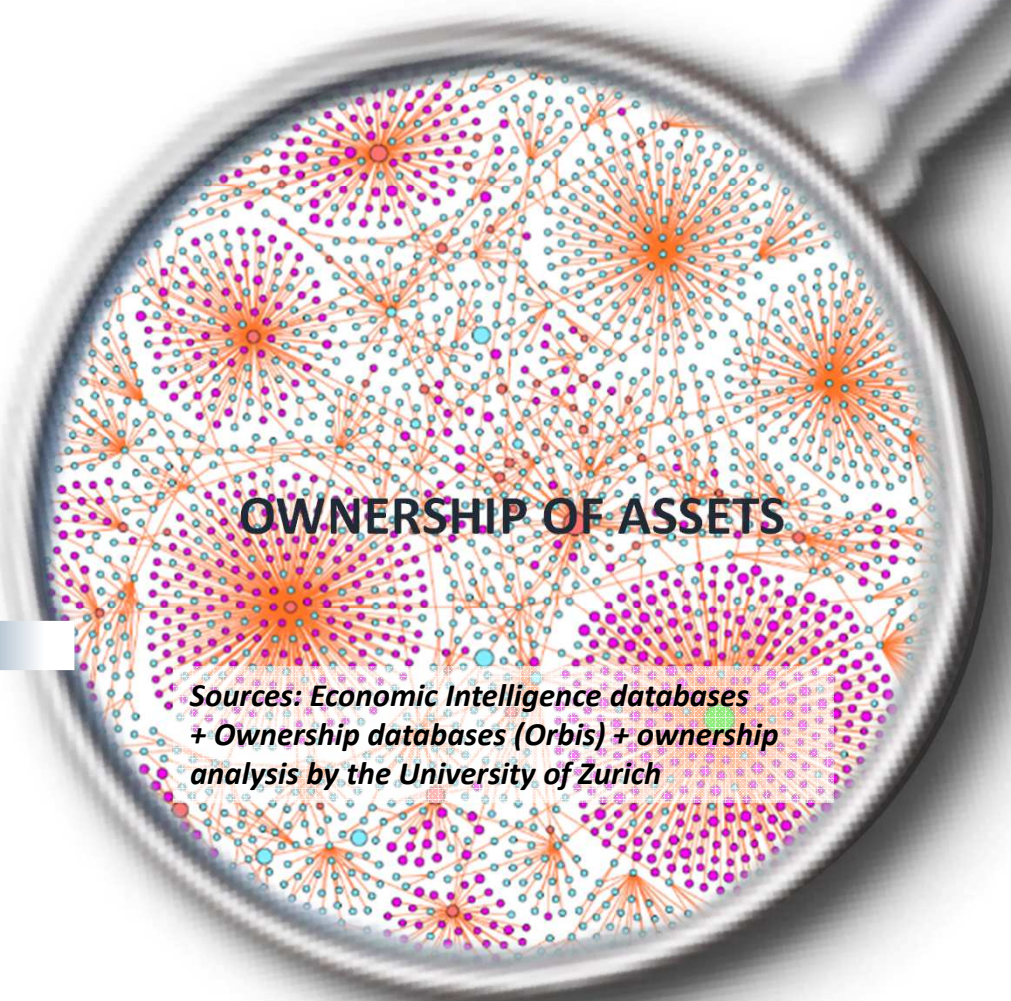
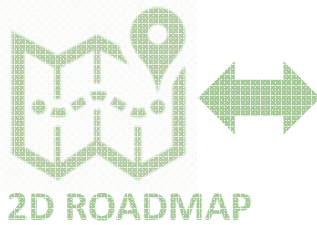
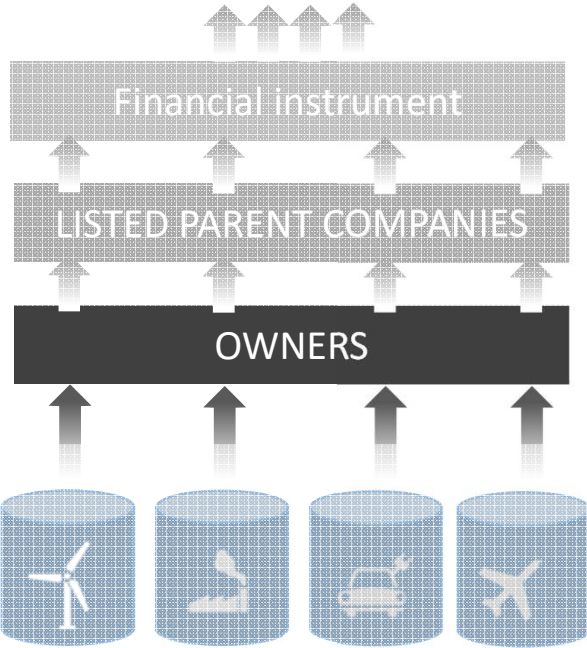
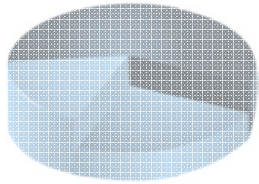


DATA ON PHYSICAL ASSETS



# LINKING REAL ASSETS TO FINANCIAL ASSETS

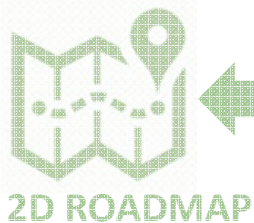
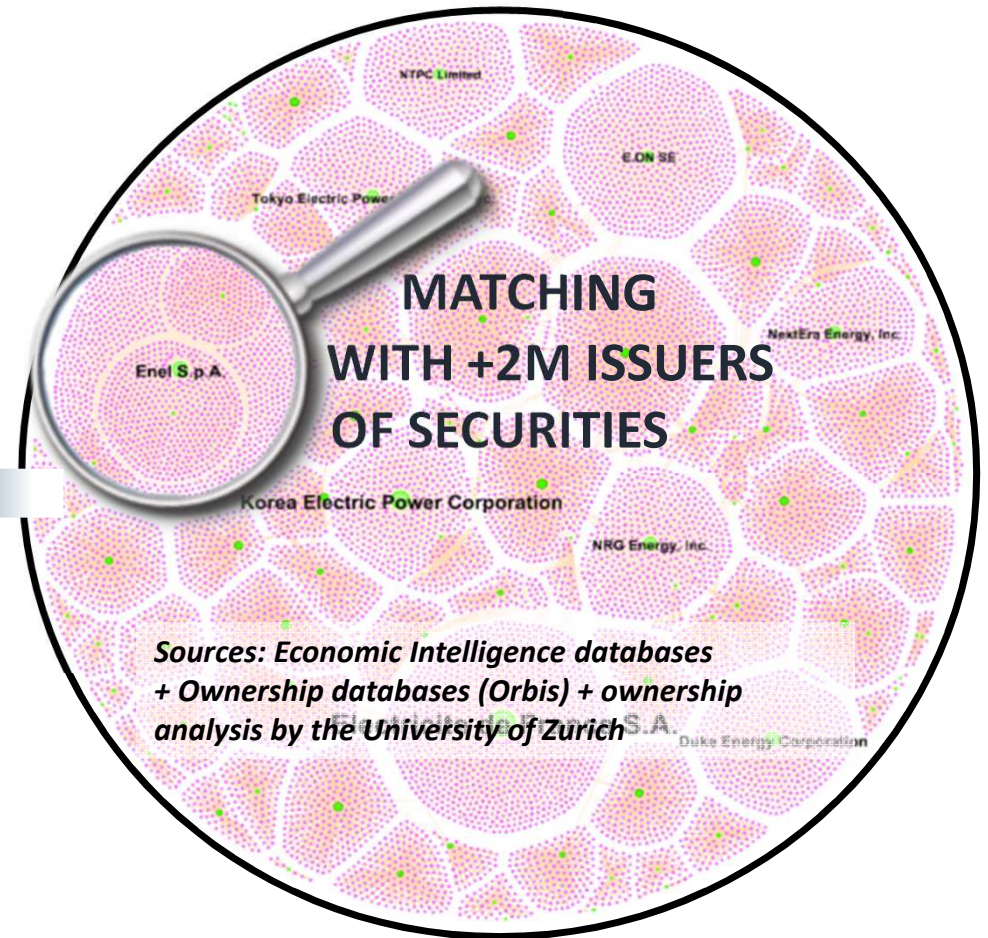
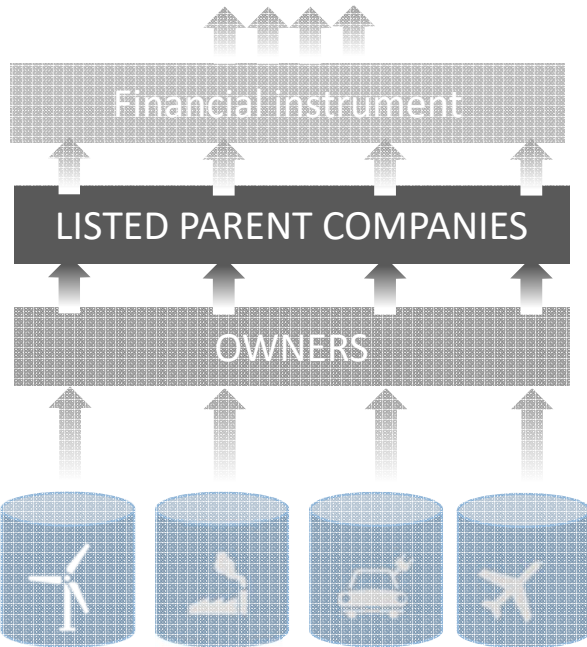
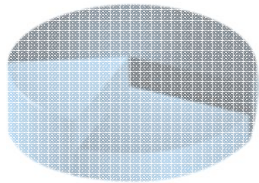
INVESTMENT PORTFOLIO





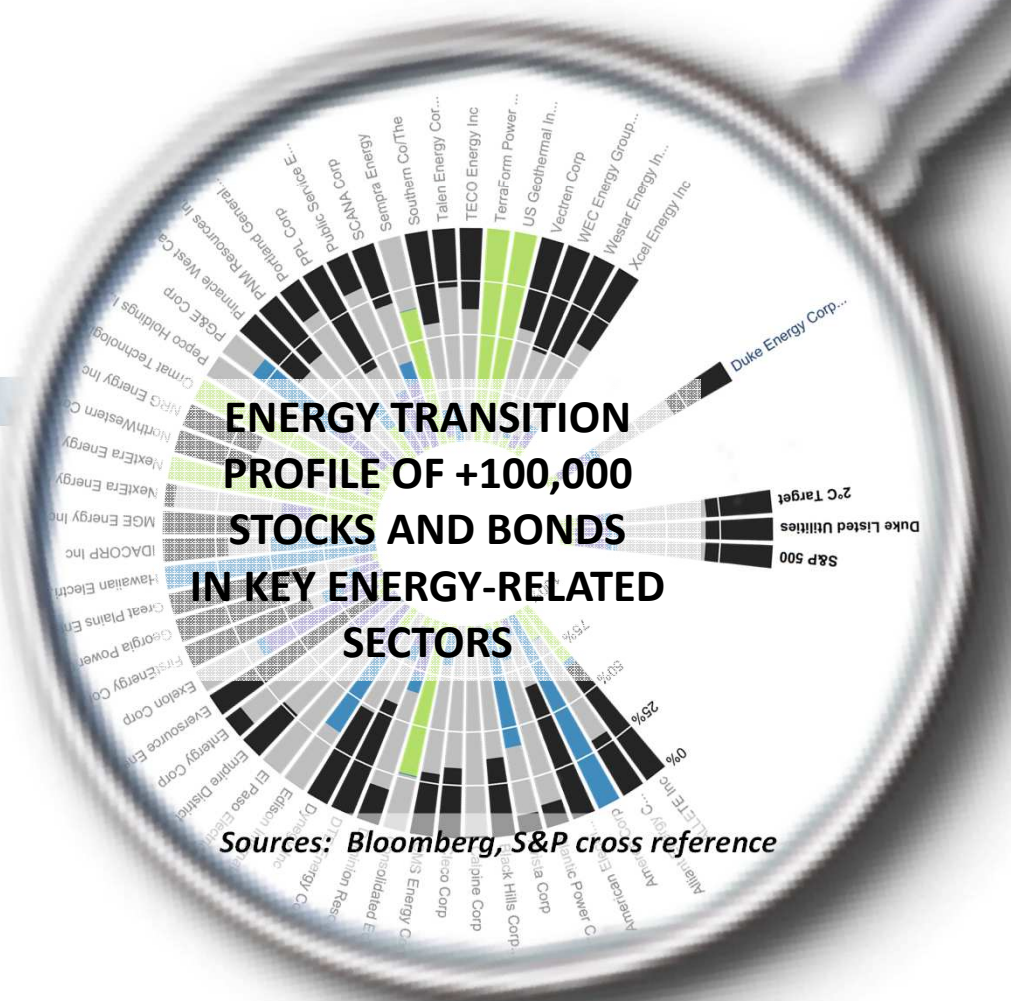
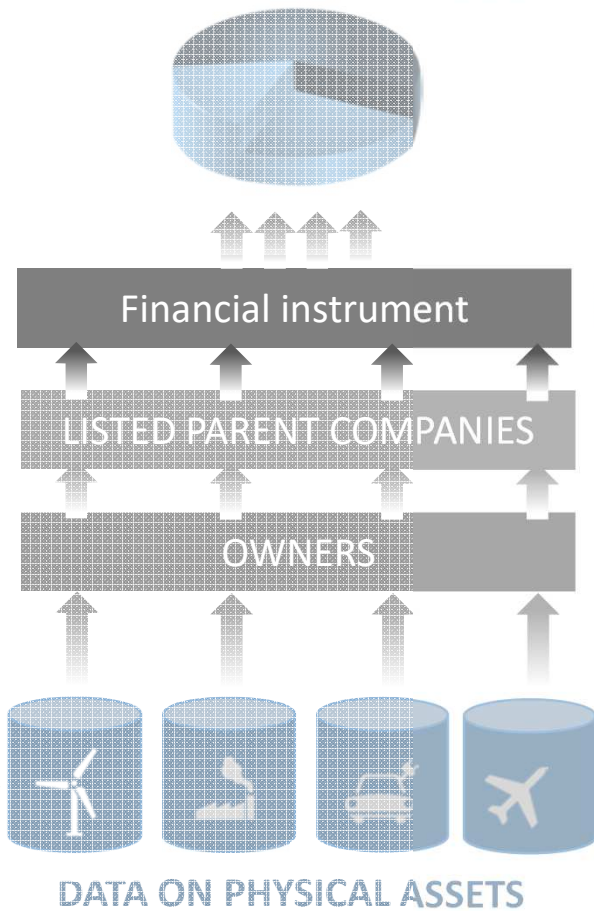
# LINKING REAL ASSETS TO FINANCIAL ASSETS

## INVESTMENT PORTFOLIO



# LINKING REAL ASSETS TO FINANCIAL ASSETS

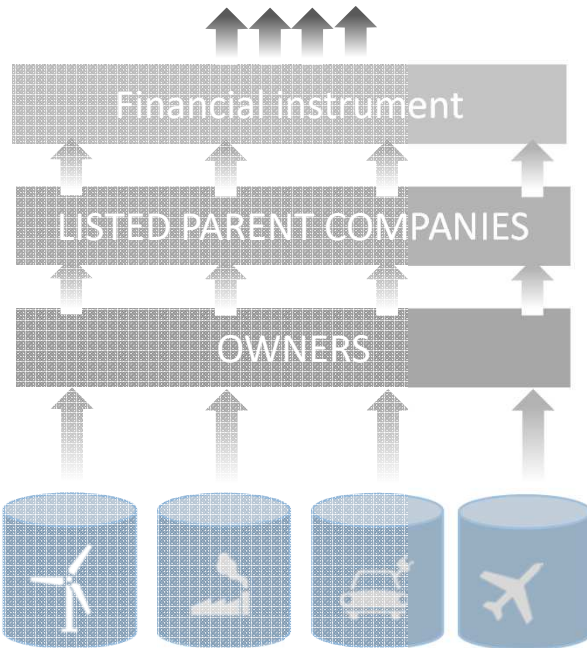
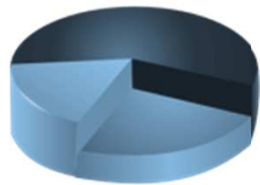
## INVESTMENT PORTFOLIO





# LINKING REAL ASSETS TO FINANCIAL ASSETS

## INVESTMENT PORTFOLIO



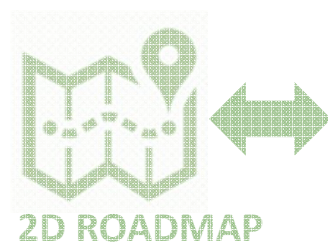
DATA ON PHYSICAL ASSETS



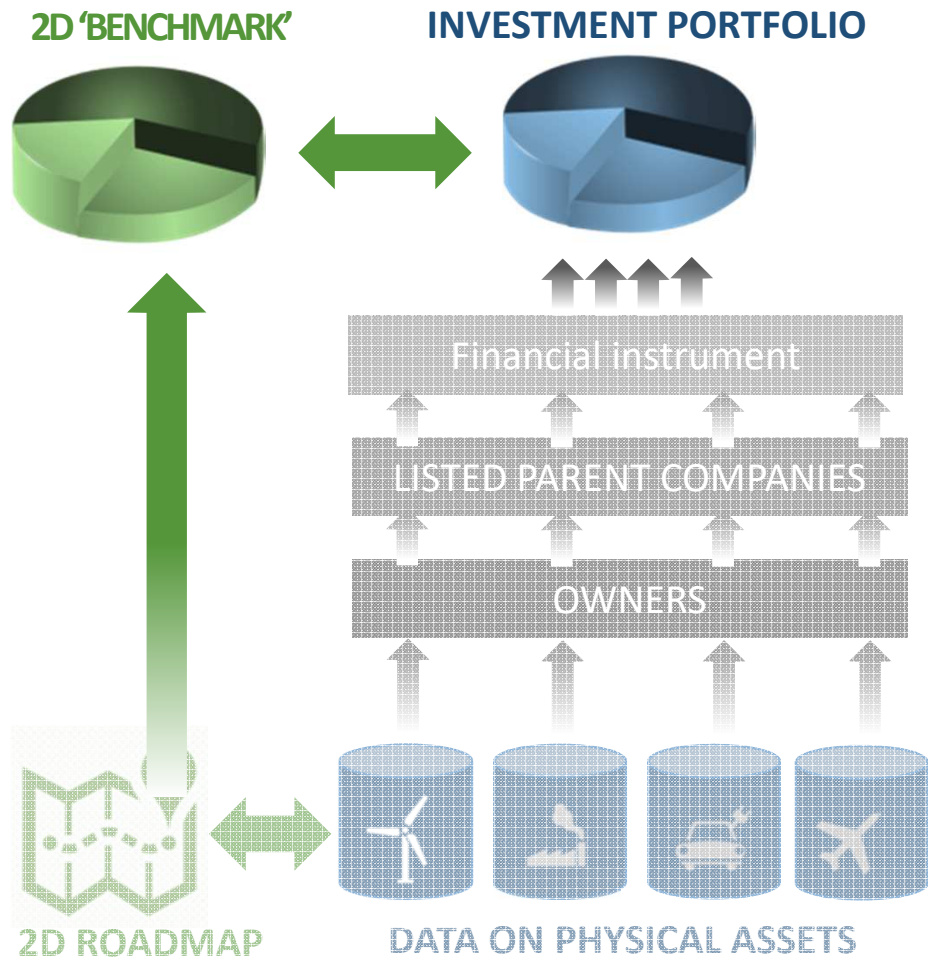
ON DEMAND  
PORTFOLIO ANALYSIS

+ MATCHING WITH  
25,000 FUNDS

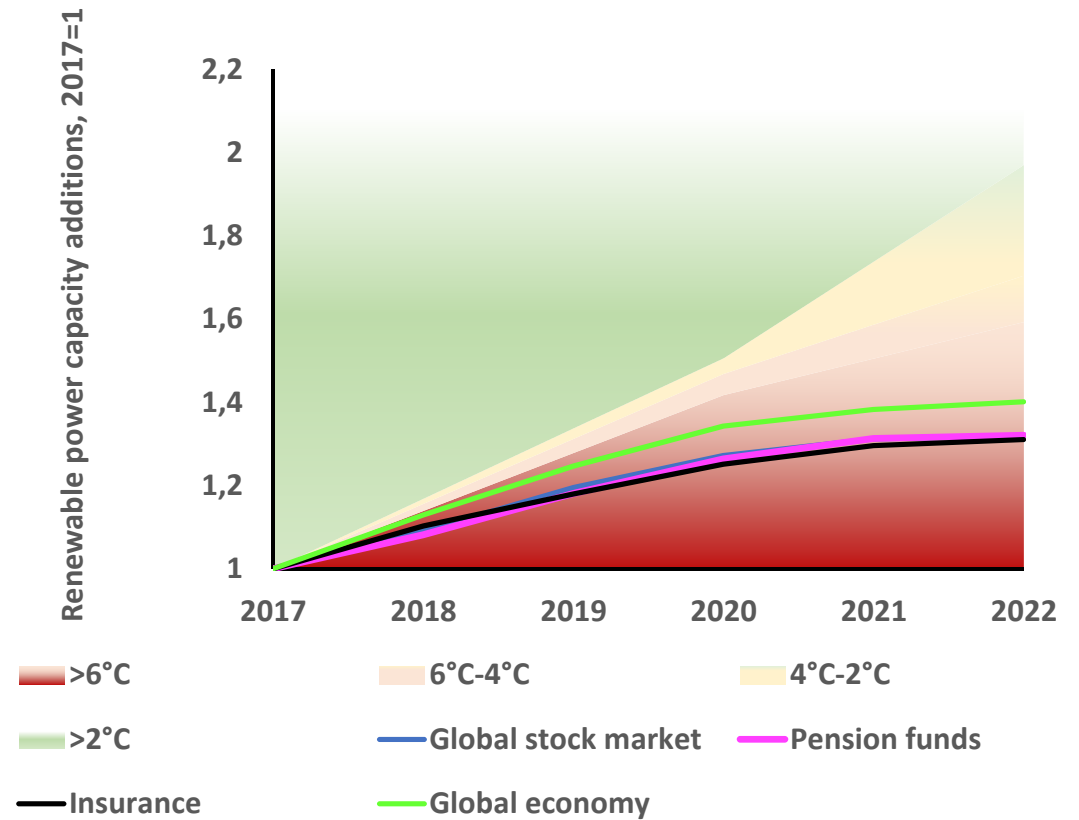
*Sources: MorningStar, AMBEST, freedom of information Act requests, Supervisory authorities*



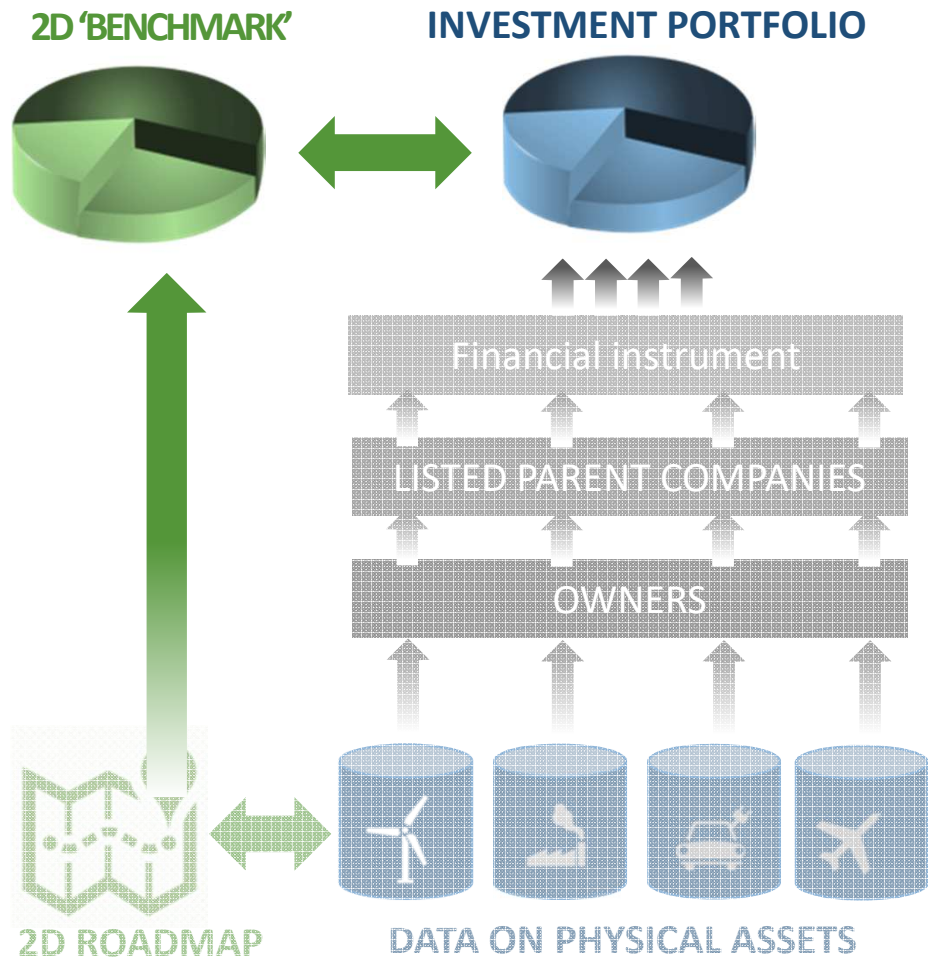
# LINKING REAL ASSETS TO FINANCIAL ASSETS



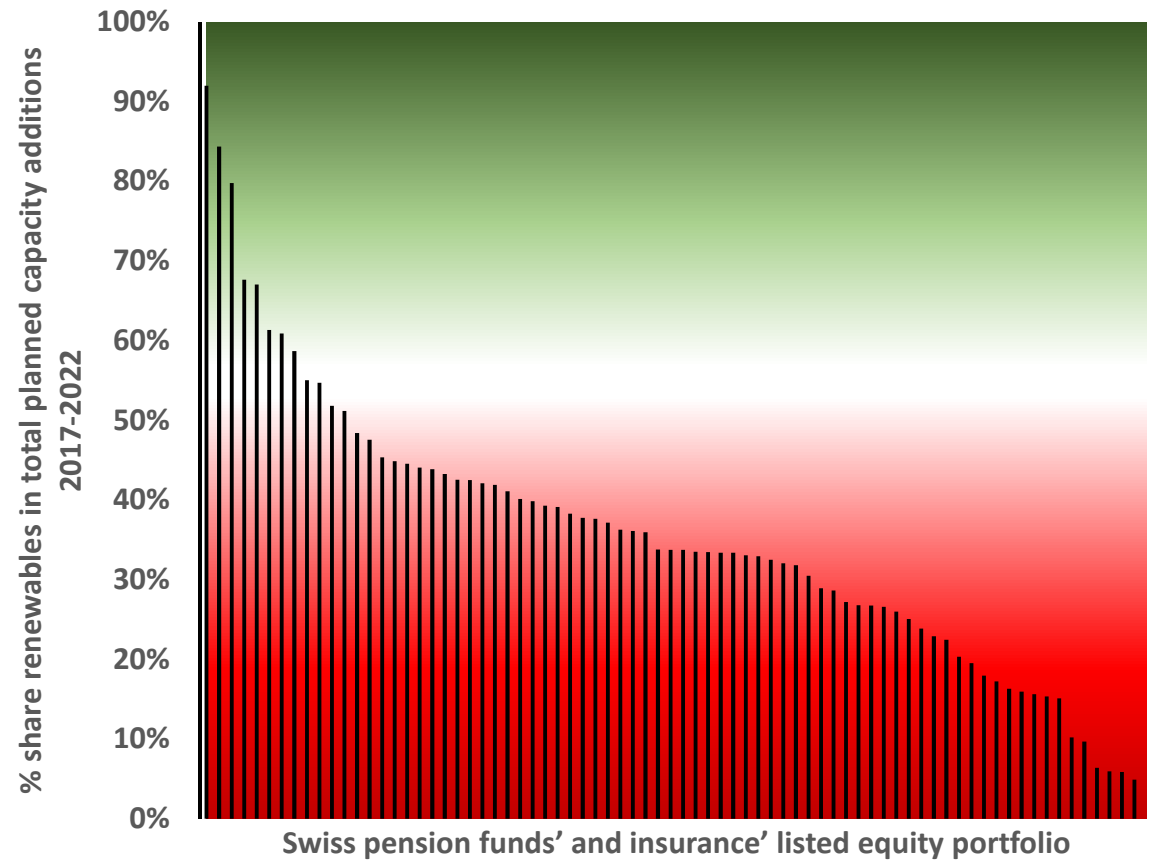
Renewables - Equity



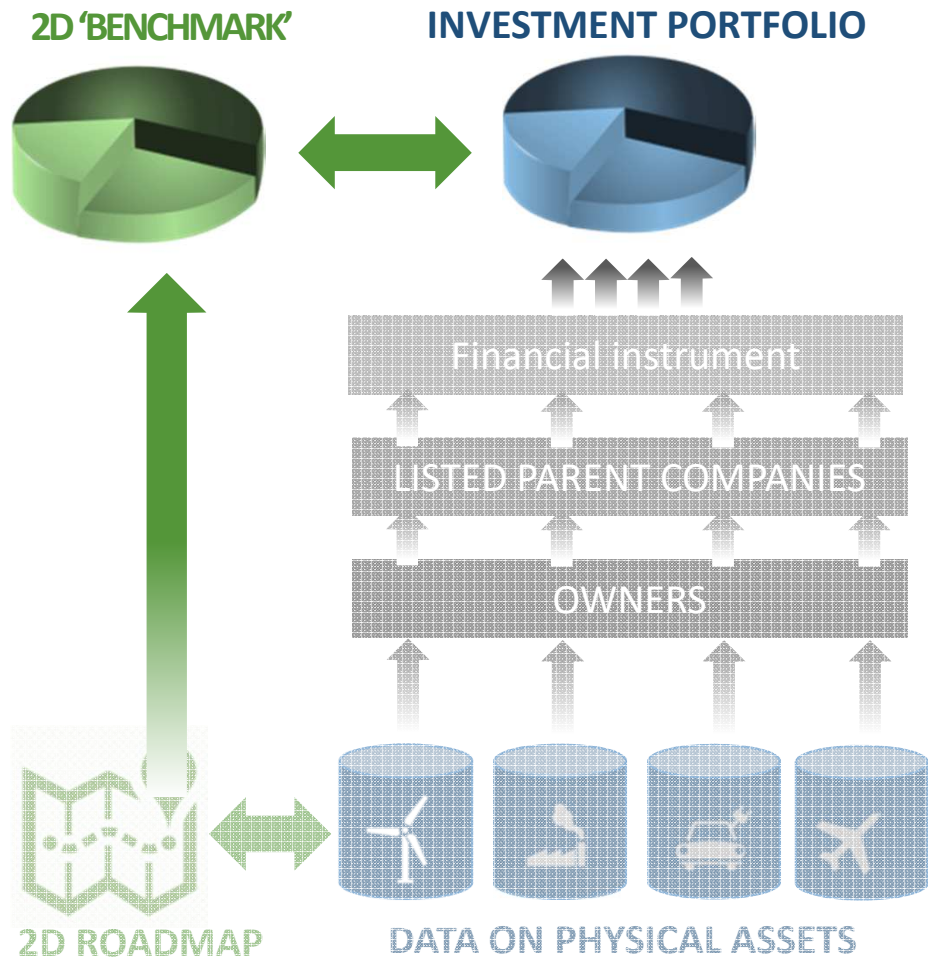
# LINKING REAL ASSETS TO FINANCIAL ASSETS



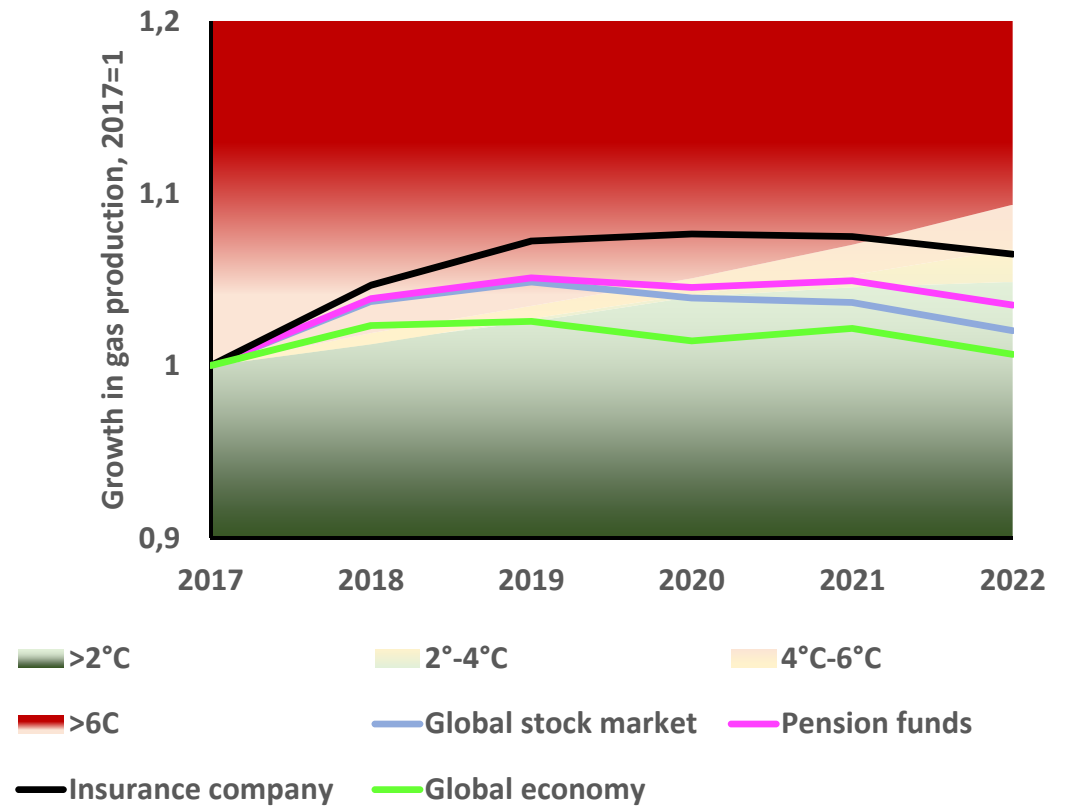
Renewable power - Listed equity portfolios



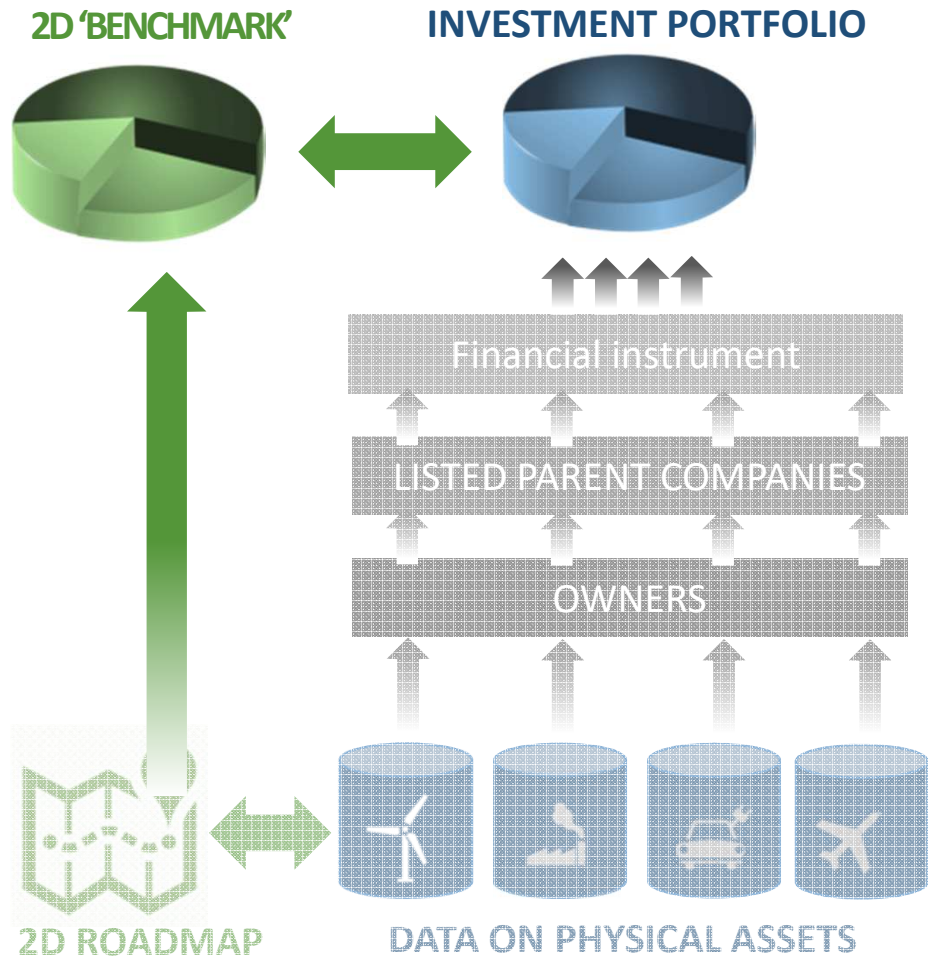
# LINKING REAL ASSETS TO FINANCIAL ASSETS



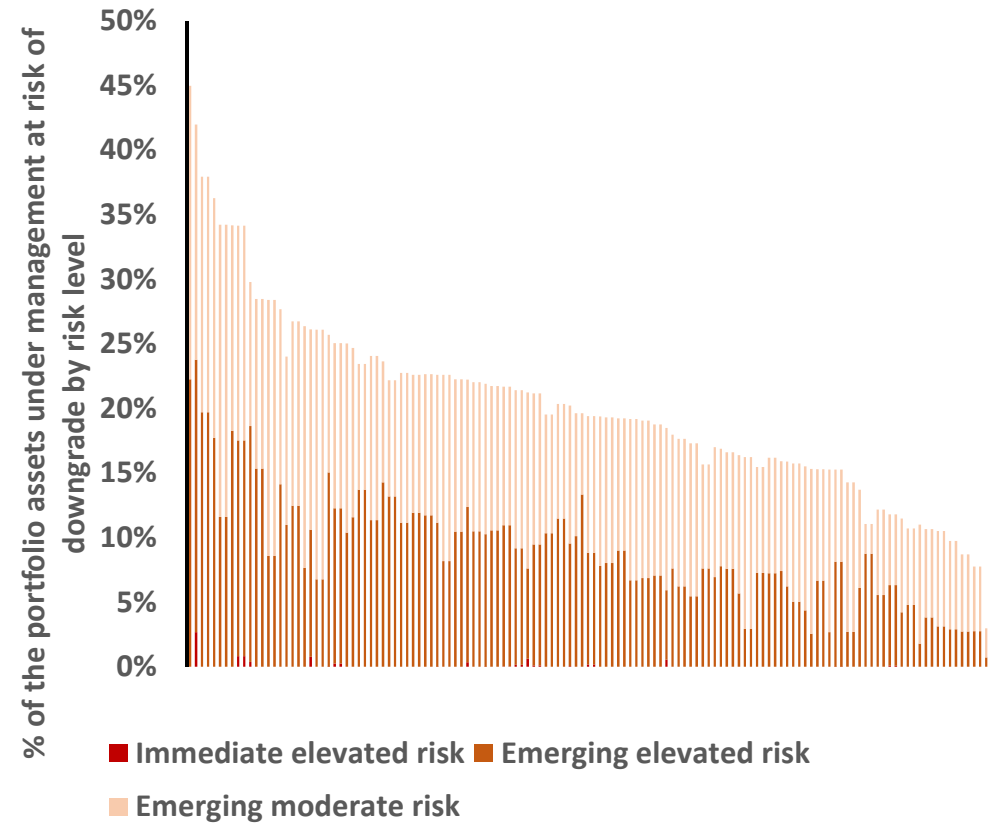
Gas production - Stock market



# LINKING REAL ASSETS TO FINANCIAL ASSETS

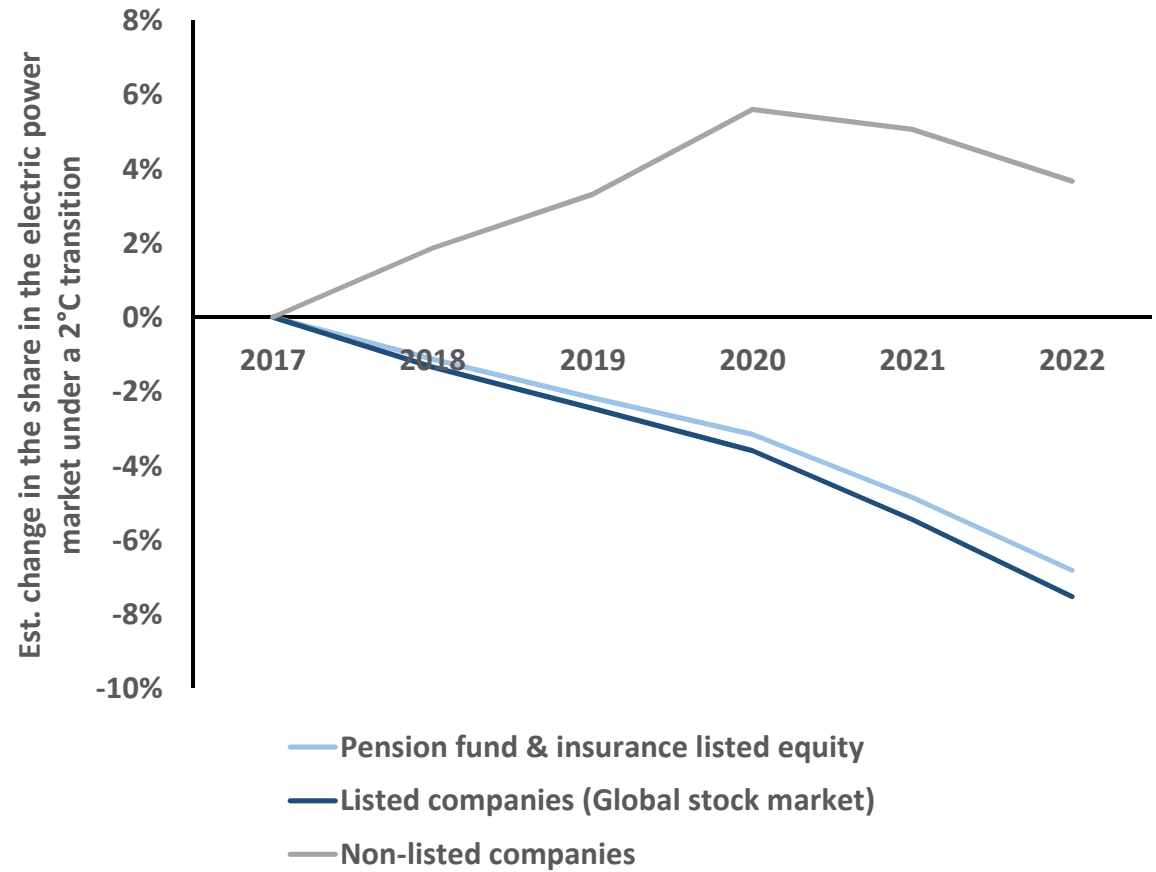
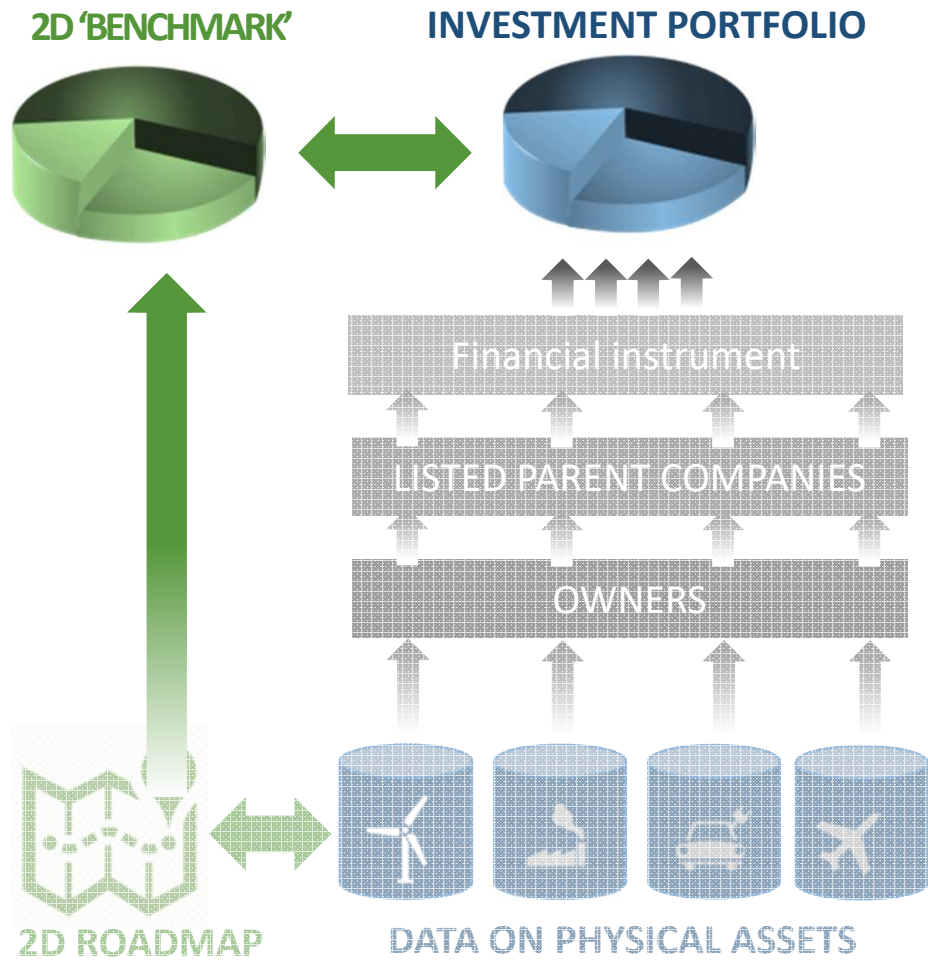


Corporate bonds funds

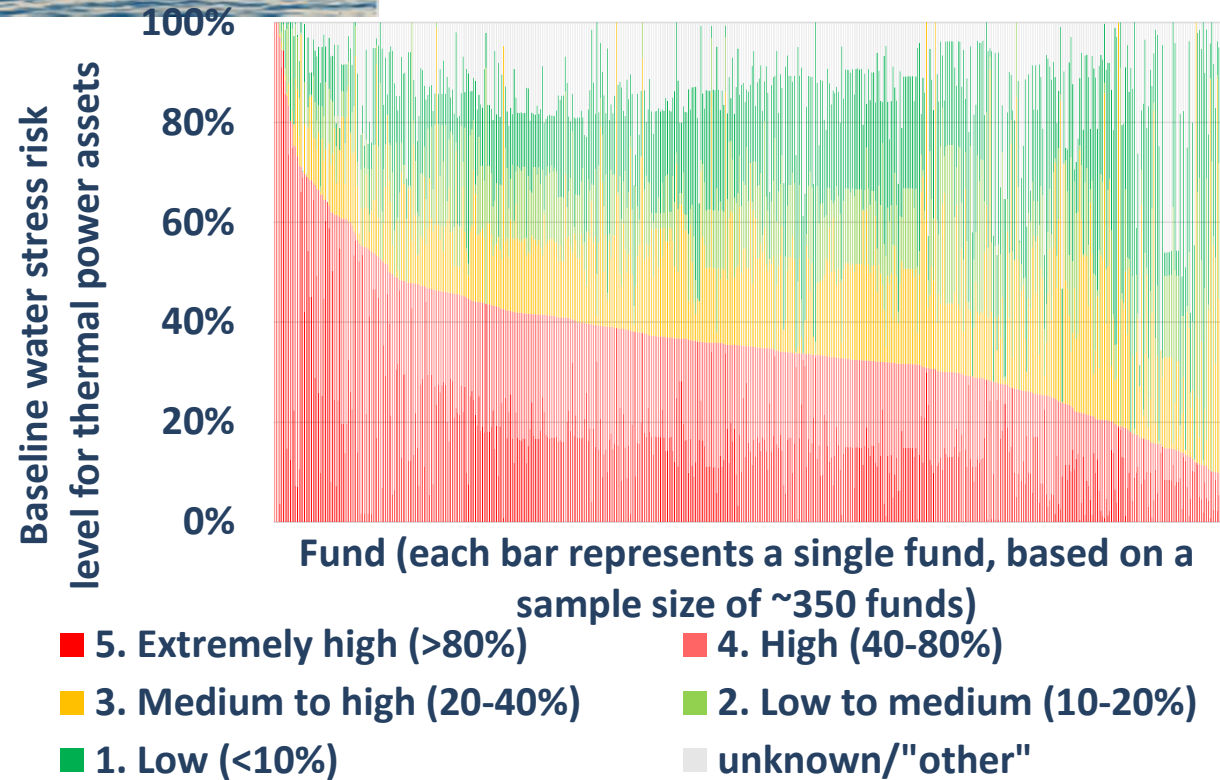
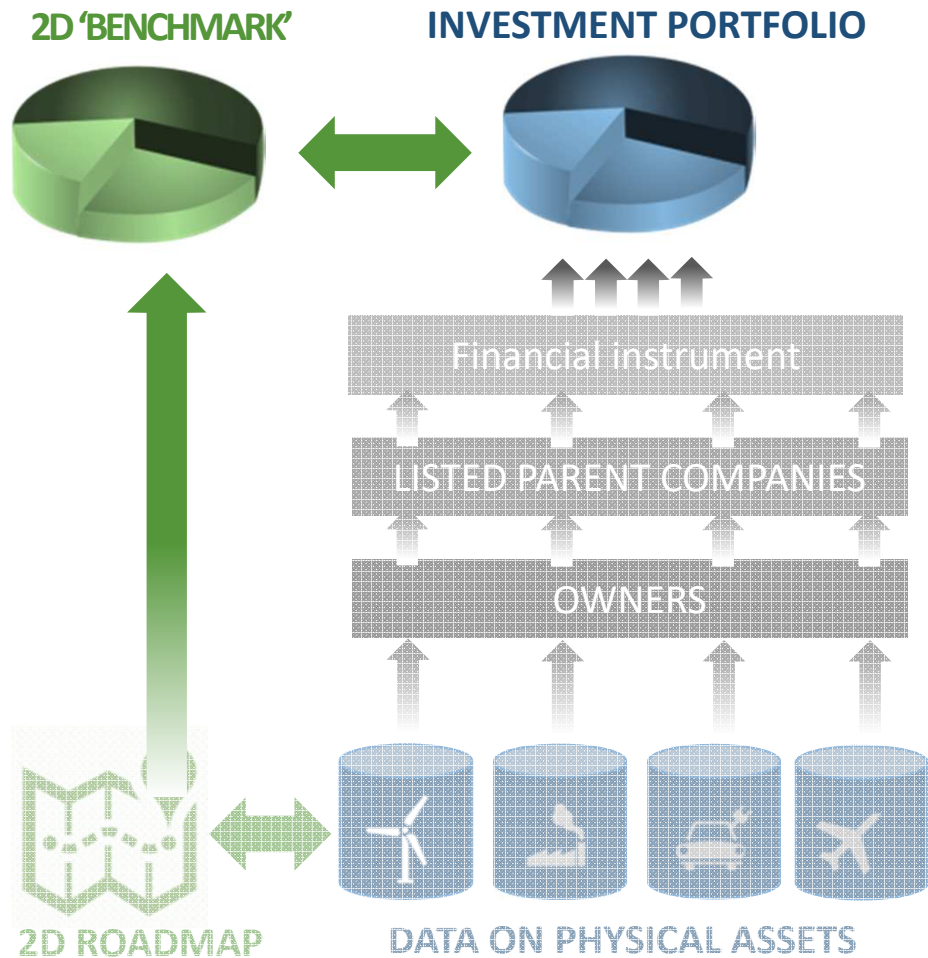




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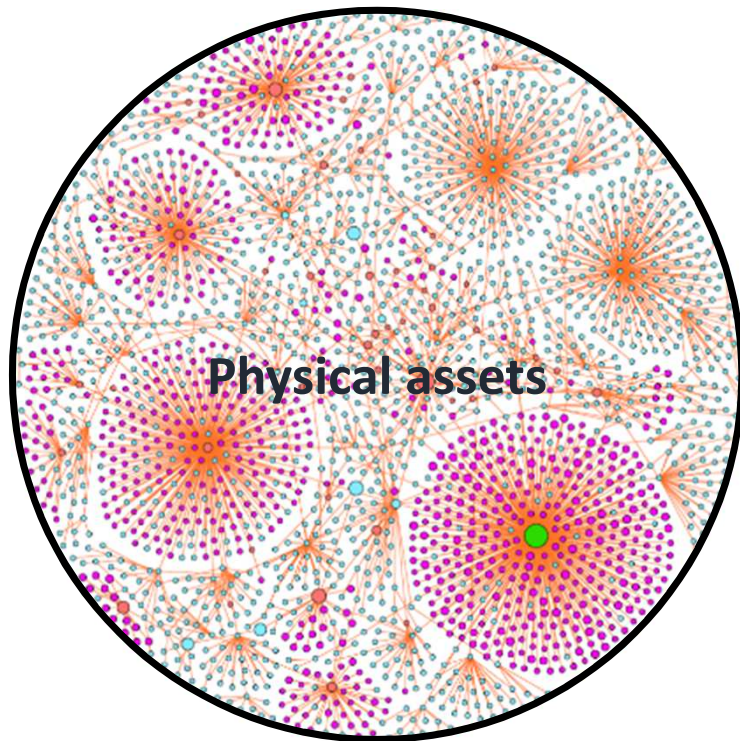


# LINKING REAL ASSETS TO FINANCIAL ASSETS

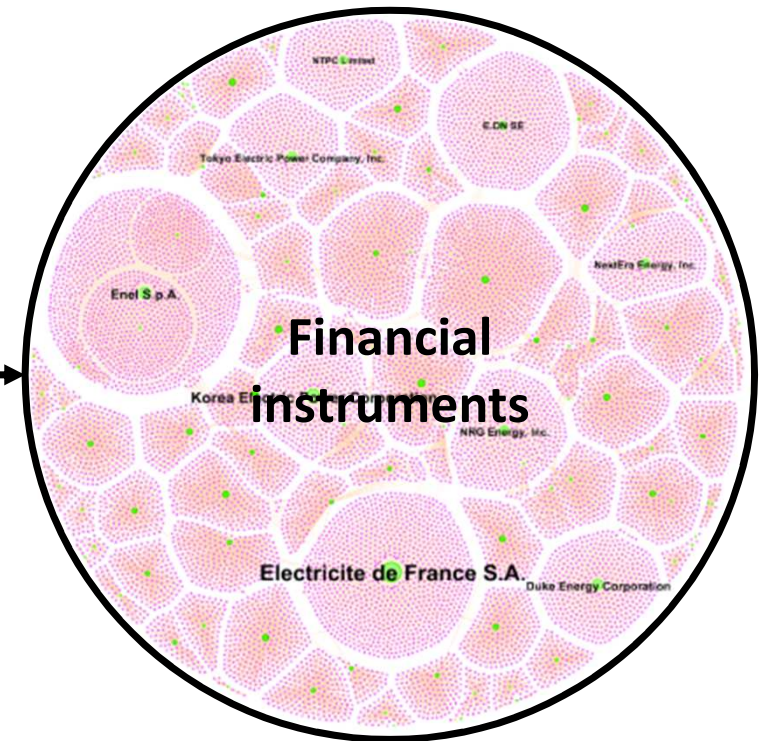


# Banks and 2°C scenario analysis: The new frontier

Big data matching hundreds of thousands of physical assets with companies



A new system of identifiers across the global universe of financial assets, from local loans to global capital markets







# REGULATORY ACTIONS

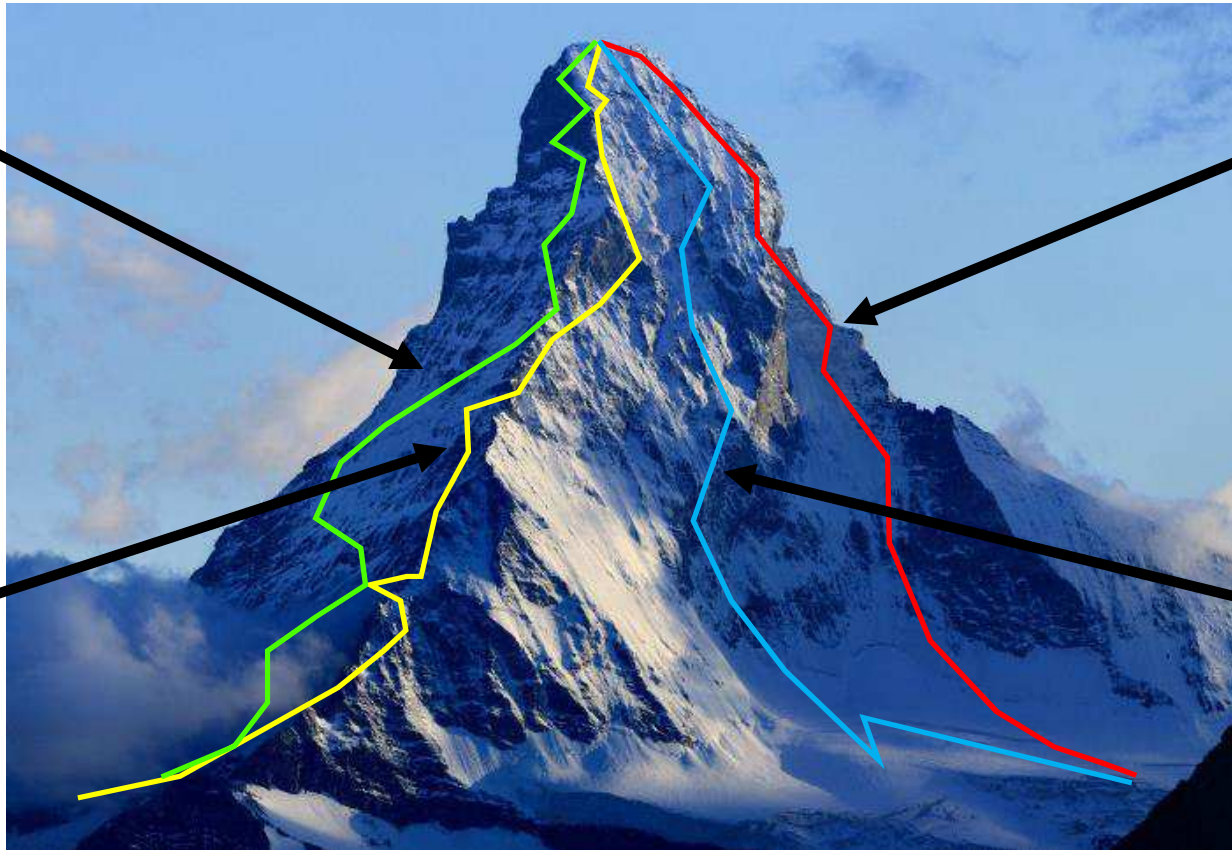
# 4 Trails to regulatory monitoring & transparency

*Mandatory disclosure*

*Analysis of supervisory data*

*Public portfolio data*

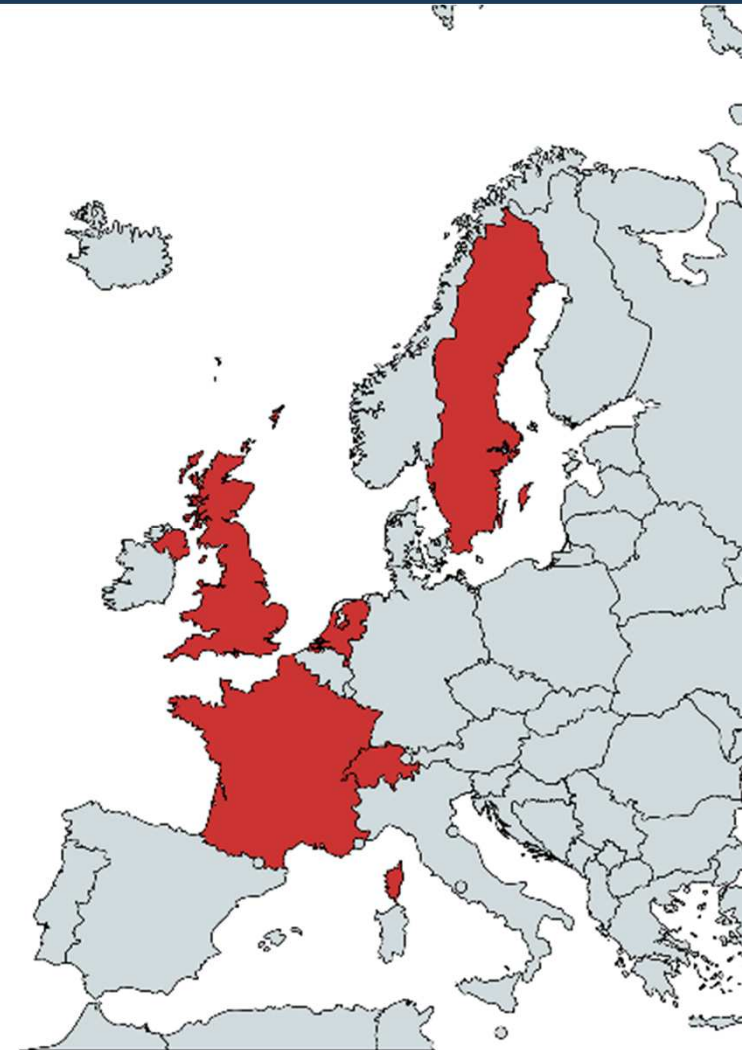
*Direct disclosure of scenario analysis*









*Different approaches in different jurisdictions*





***ACTION:*** Mandatory 2°C scenario analysis & target setting for institutional investors (Art. 173, ET Law 2015)

***UPTAKE:*** Preliminary evidence suggests limited compliance in 2017 reporting cycle

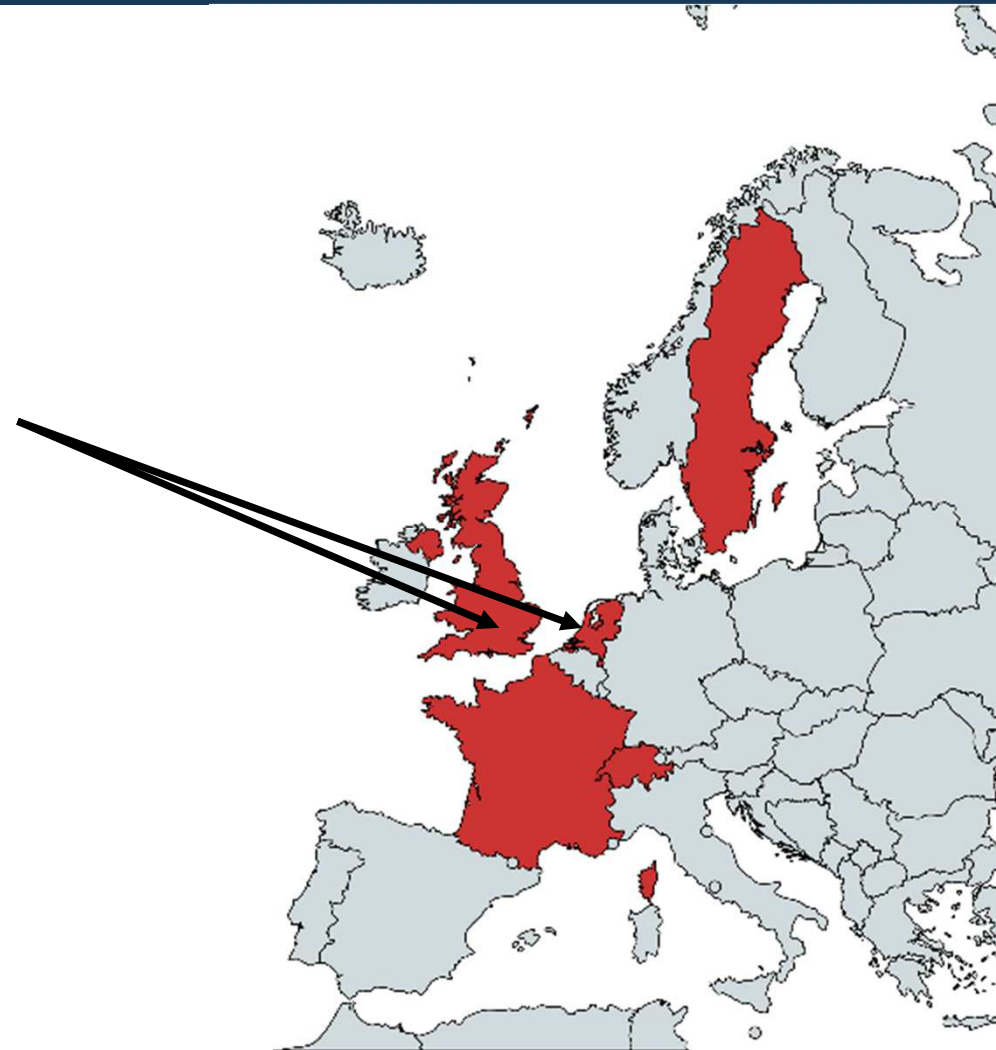




**ACTION:** *Supervisory analysis based on supervisory data (Solvency II, Anacredit) and /or survey*



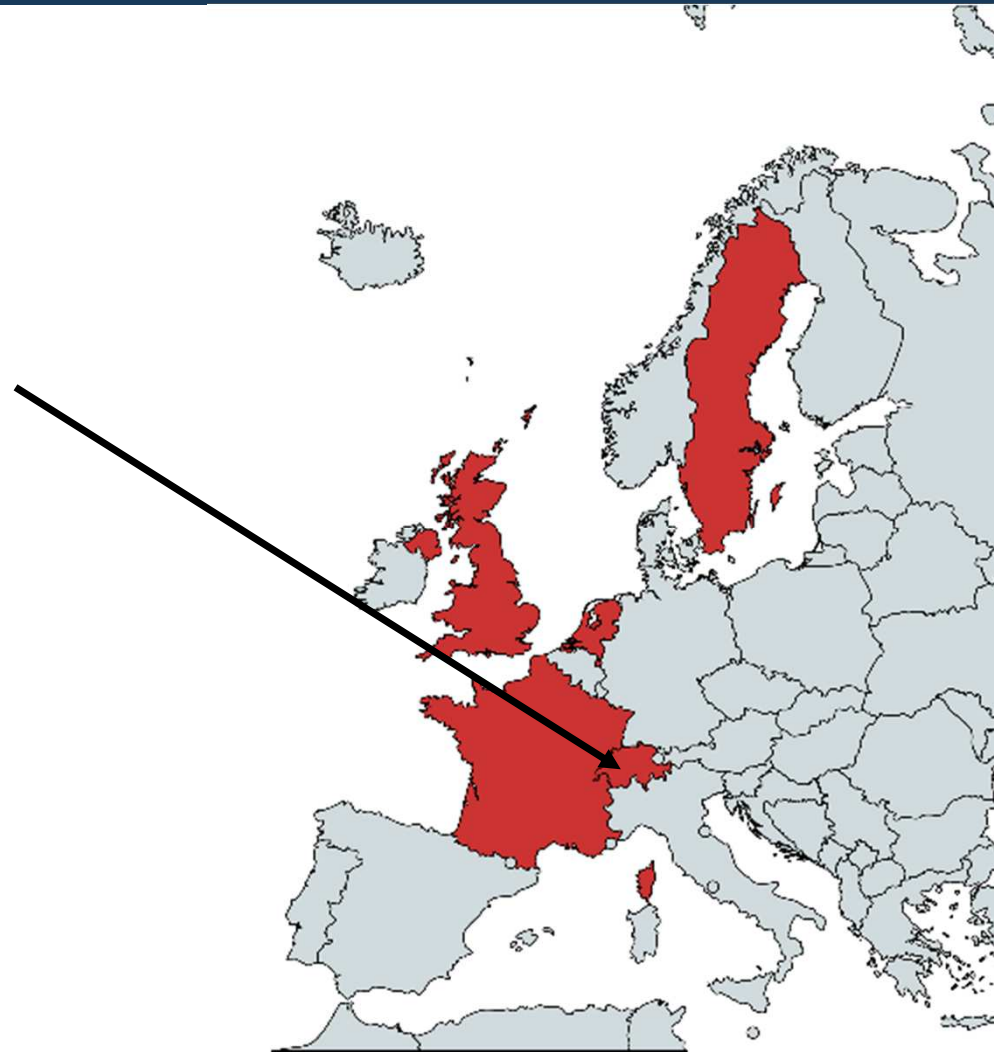
**UPTAKE:** *100% coverage, but not necessarily directly engaging regulated entities on results of the analysis; Caveats around reported data*

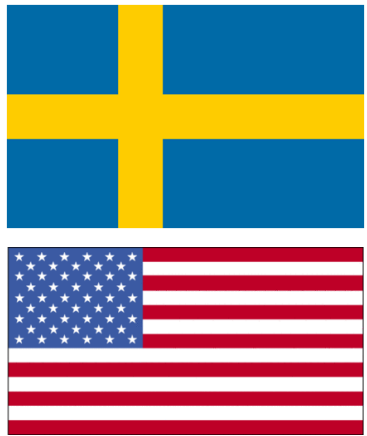




***ACTION:*** Voluntary 2°C scenario analysis based on gov't support and standardized, free, open-source model

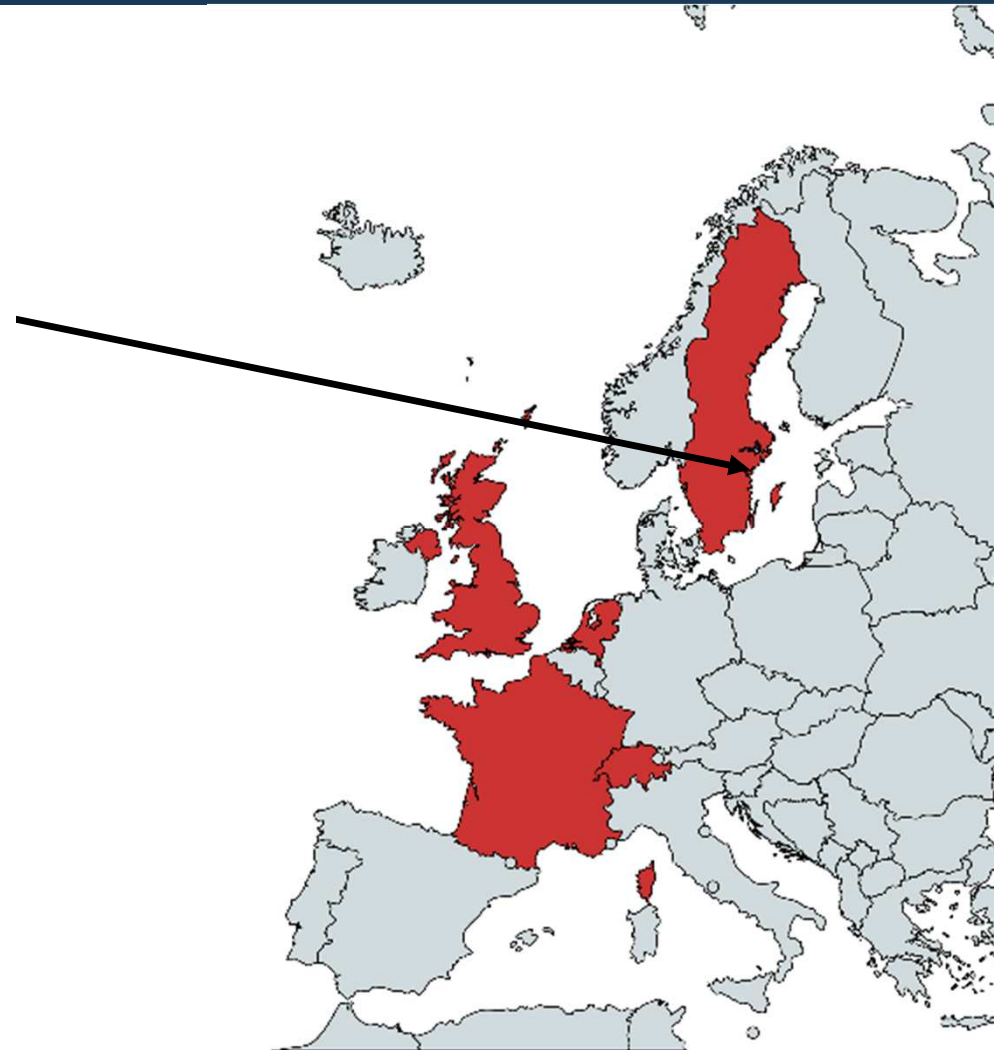
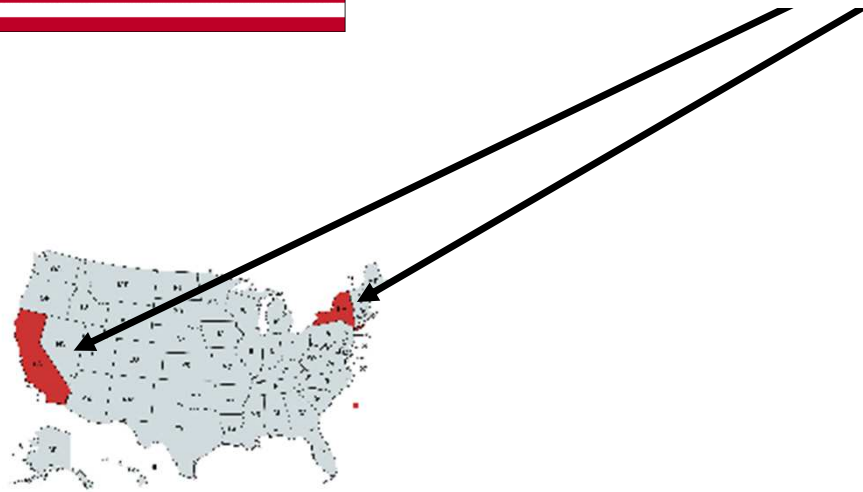
***UPTAKE:*** ~65-75% coverage; strong linkages to participating organizations





**ACTION:** Analysis based on publicly available portfolio data

**UPTAKE:** 100% coverage; may have more limited link to policy actors & financial institutions





Jakob@2degrees-investing.org

