



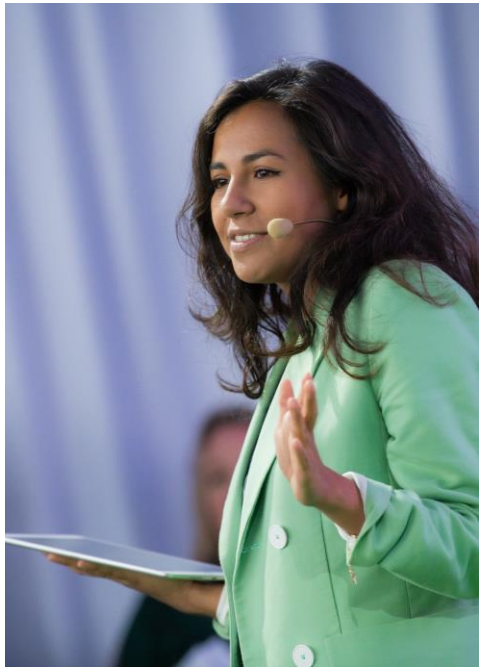

Visie op 2022

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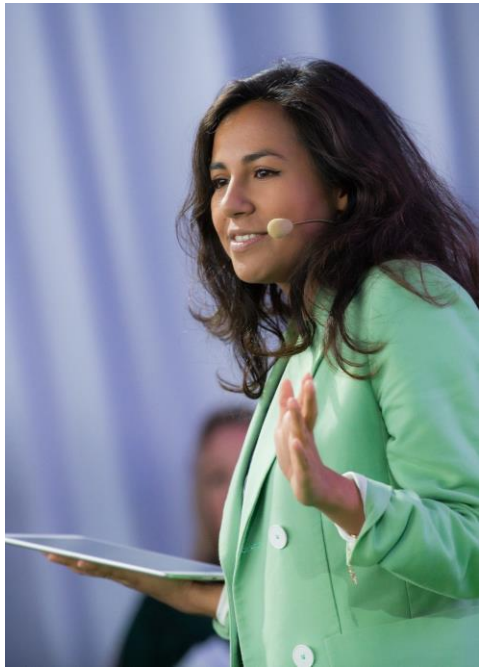
Programma

- 14.00 - 14.05 uur welkom door Boudewijn van Uden
- 14.05 – 14.15 uur opening door Jos Baeten
- 14:15 – 15:00 uur presentatie Rick van der Ploeg
- 15:00 – 15.30 uur presentatie Jack Julicher
- 15:30 – 16.00 uur pauze
- 16.00 – 16:45 uur presentatie Talitha Muusse
- 16:45 – 17:15 uur paneldiscussie
- 17:15 uur afsluiting & borrel







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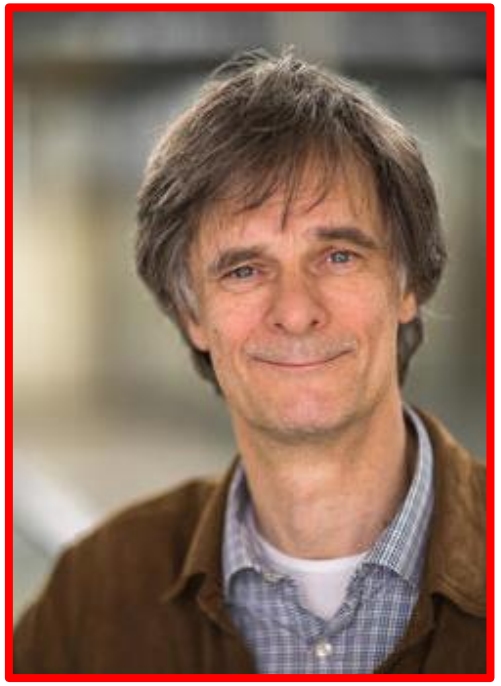
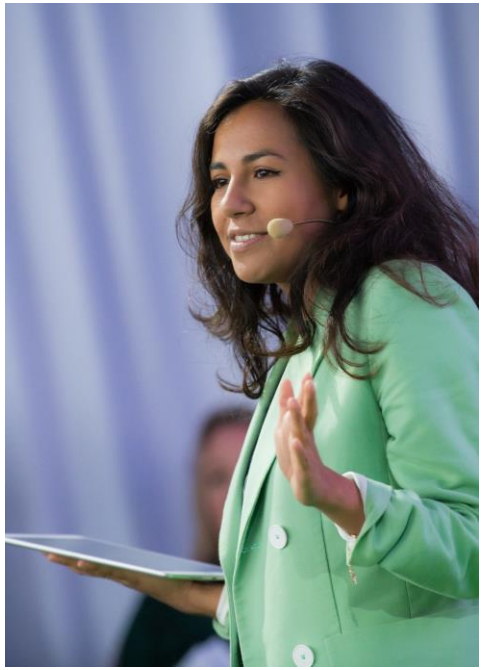
Sustainable value creation







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GREEN RECOVERY AFTER THE PANDEMIC

SEMINAR A.S.R. VERMOGENSBEHEER
VISIE OP 2022, 27 OKTOBER 2021

RICK VAN DER PLOEG

UNIVERSITY OF OXFORD
UNIVERSITY OF AMSTERDAM

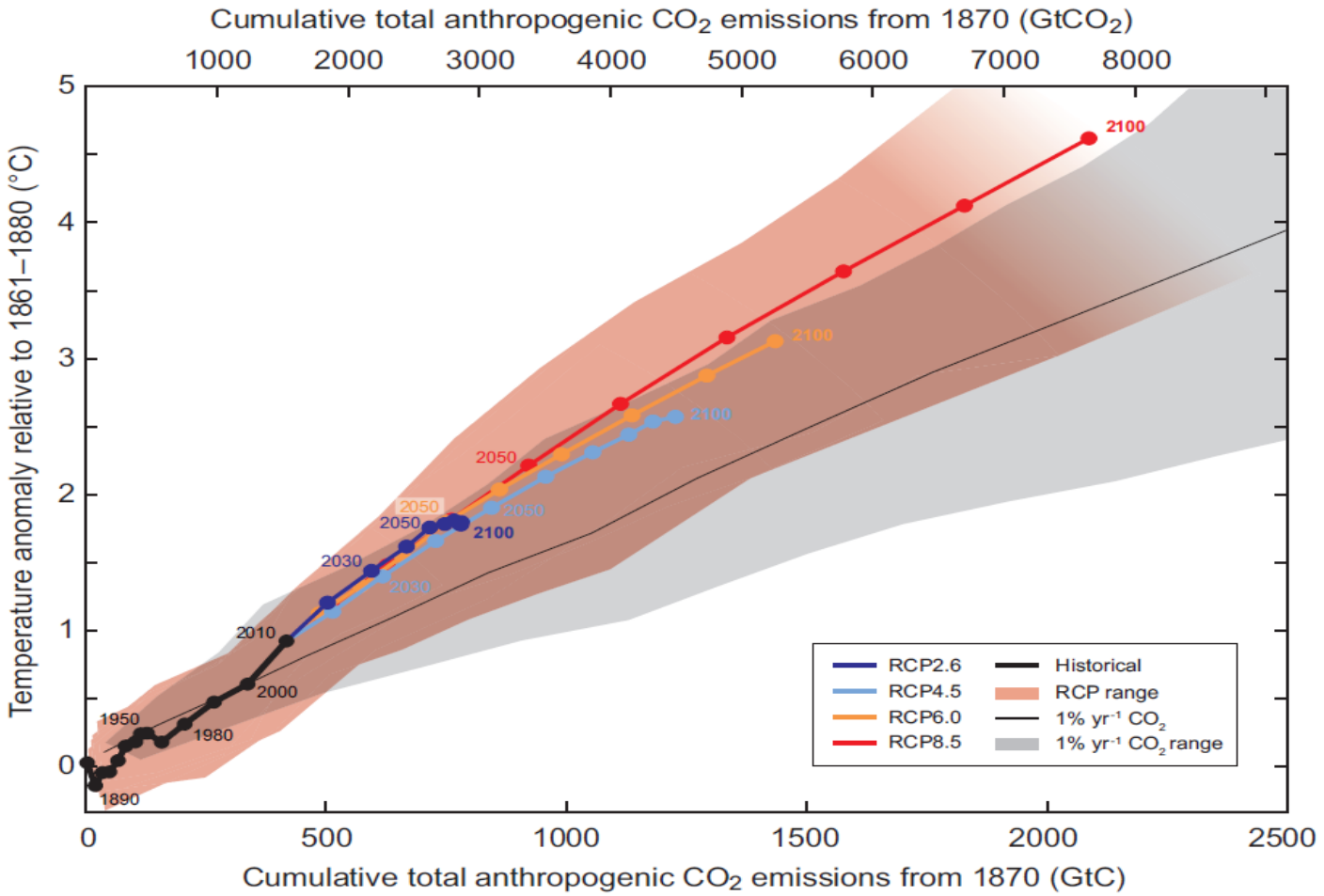
OUTLINE

- Golden policy for climate change
- Little has been done
- Challenges and obstacles
- Pandemic, biodiversity and global warming
- What to do for a green, pandemic-free recovery
- Flywheel effects: technological tipping, social tipping, political tipping
- What can business corporations do?
- What can people do?

GOLDEN POLICY: CARBON PRICING
need cap & trade and transfers

- Curbs demand for fossil fuel.
- Encourages to leave more fossil fuel in crust of earth.
- Induces substitution from carbon-intensive (tar sands?, coal, crude oil) to less carbon-intensive fossil fuel (gas).
- Induces substitution away from fossil fuel to renewables and brings forward the carbon-free era.
- Boosts CCS and limits slash and burn of forests.
- Boosts R&D into clean fuel alternatives and into energy-saving technology.
- Encourages households, firms and government to spend more on CO2 mitigation and CO2 adaptation e.g. dykes).

Cumulative emissions drive global warming so we must go to **net zero**



Source: IPCC (2013)

Peak Global Warming and Safe Carbon Budget

- Temperature cap acts as political focal point.
- Cumulative emissions drive peak global warming.

- Safe carbon budget is about 300 GtC to stay below 2 degrees Celsius: about 30 years at current use of fossil fuel use left.

- The clock is ticking every day.

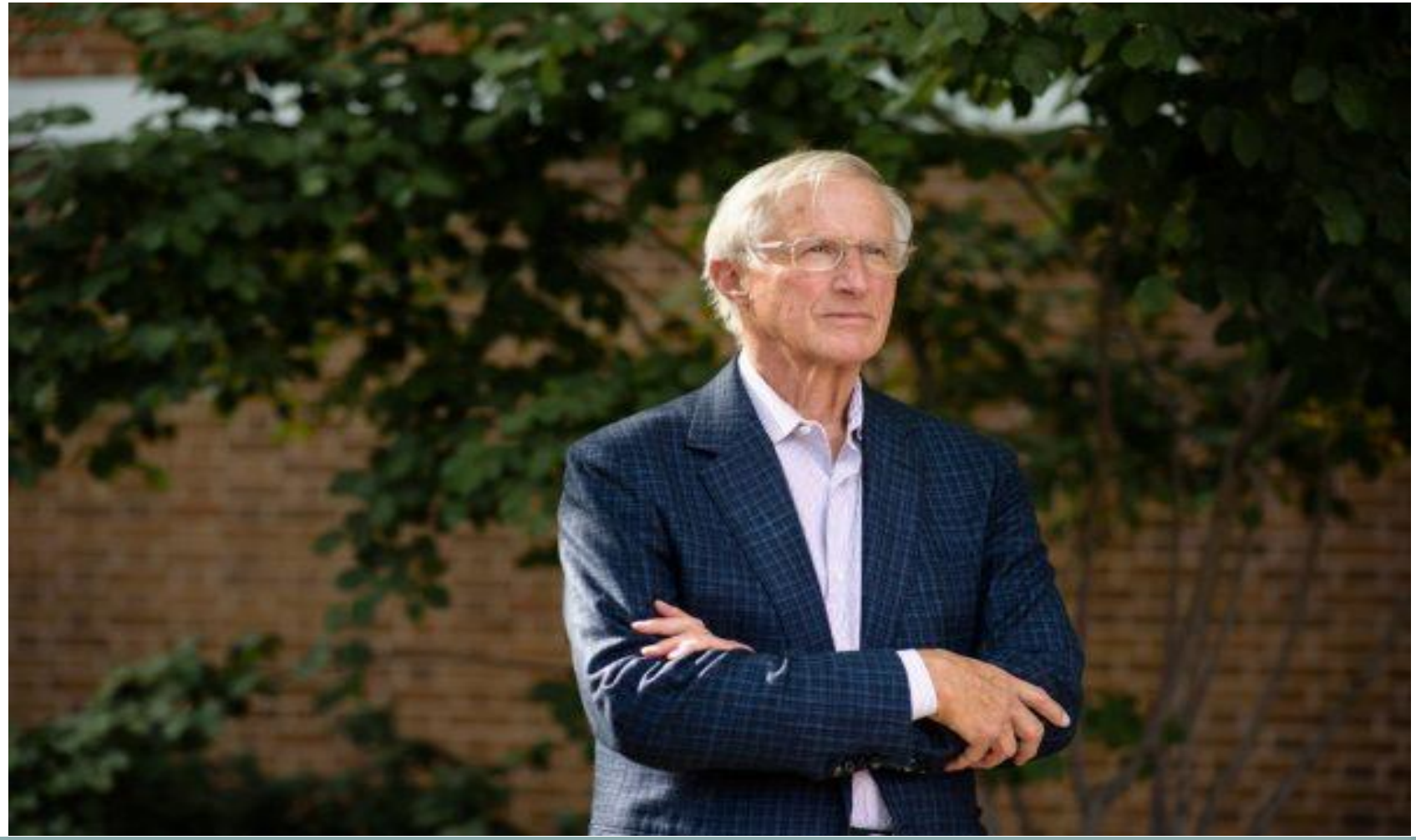
- The price of carbon necessary to stay within 1.5 or 2 degrees cap must rise at a rate equal to the interest rate.

- Alternative: Pigouvian approach (social cost of carbon)

What interest rate to use?

- Most IAM's suggest *r* between 5 and 12%/year. UK even 15% per year. Procrastination of carbon pricing.
- Gollier (2019) speaks of the "The Big Green Bet":
  - Safe carbon budget is uncertain (political risk).
  - Future marginal abatement costs are uncertain.
  - Future growth in emissions and consumption growth are uncertain.
- Set growth of carbon prices to the safe interest rate plus *beta* times the risk premium, where *beta* is correlation coefficient between log MAC and log consumption. This gives 3.5% per year in real terms.

William Nordhaus (Nobel, 2018)

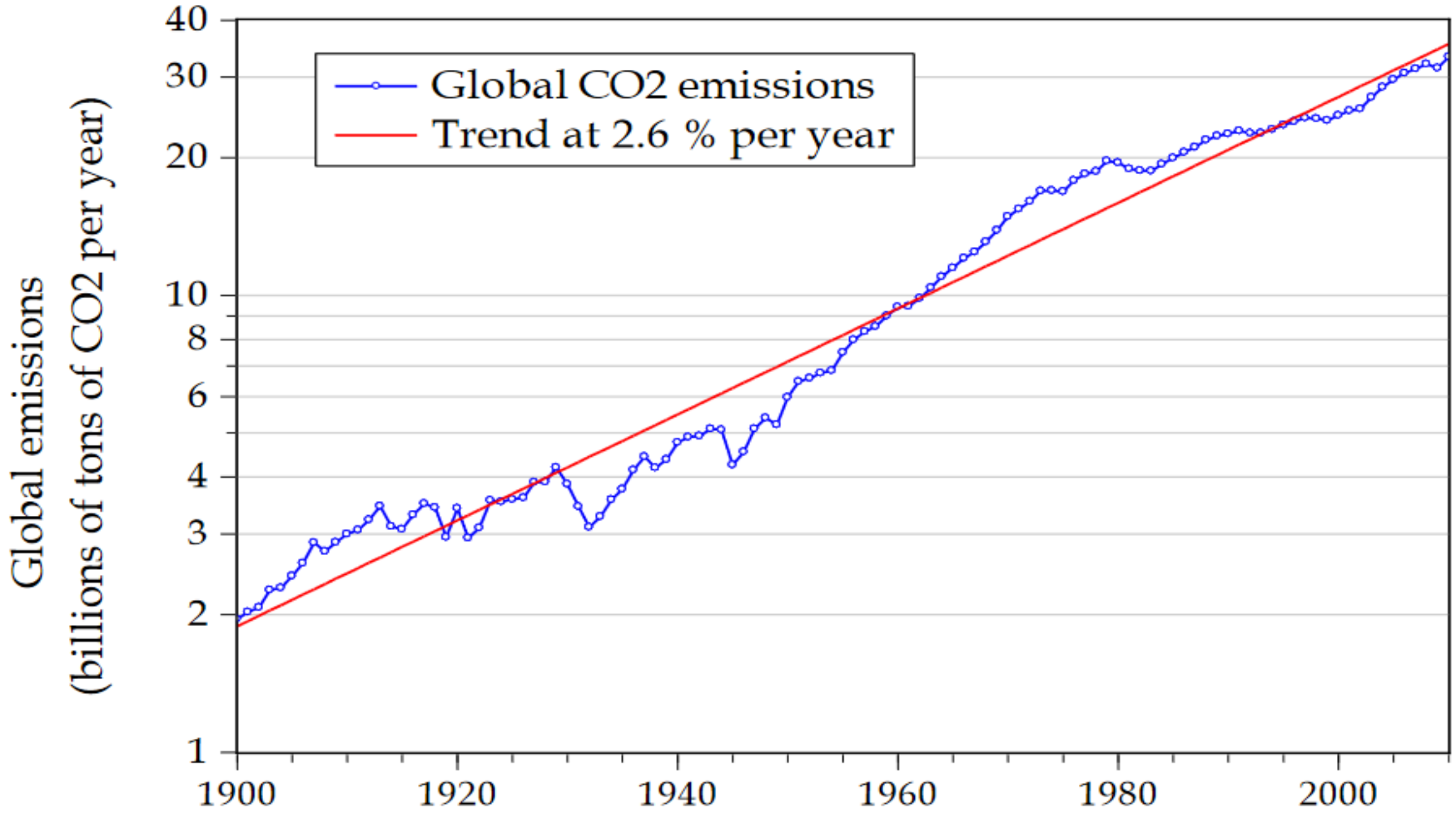


VERY LITTLE HAS BEEN ACHIEVED

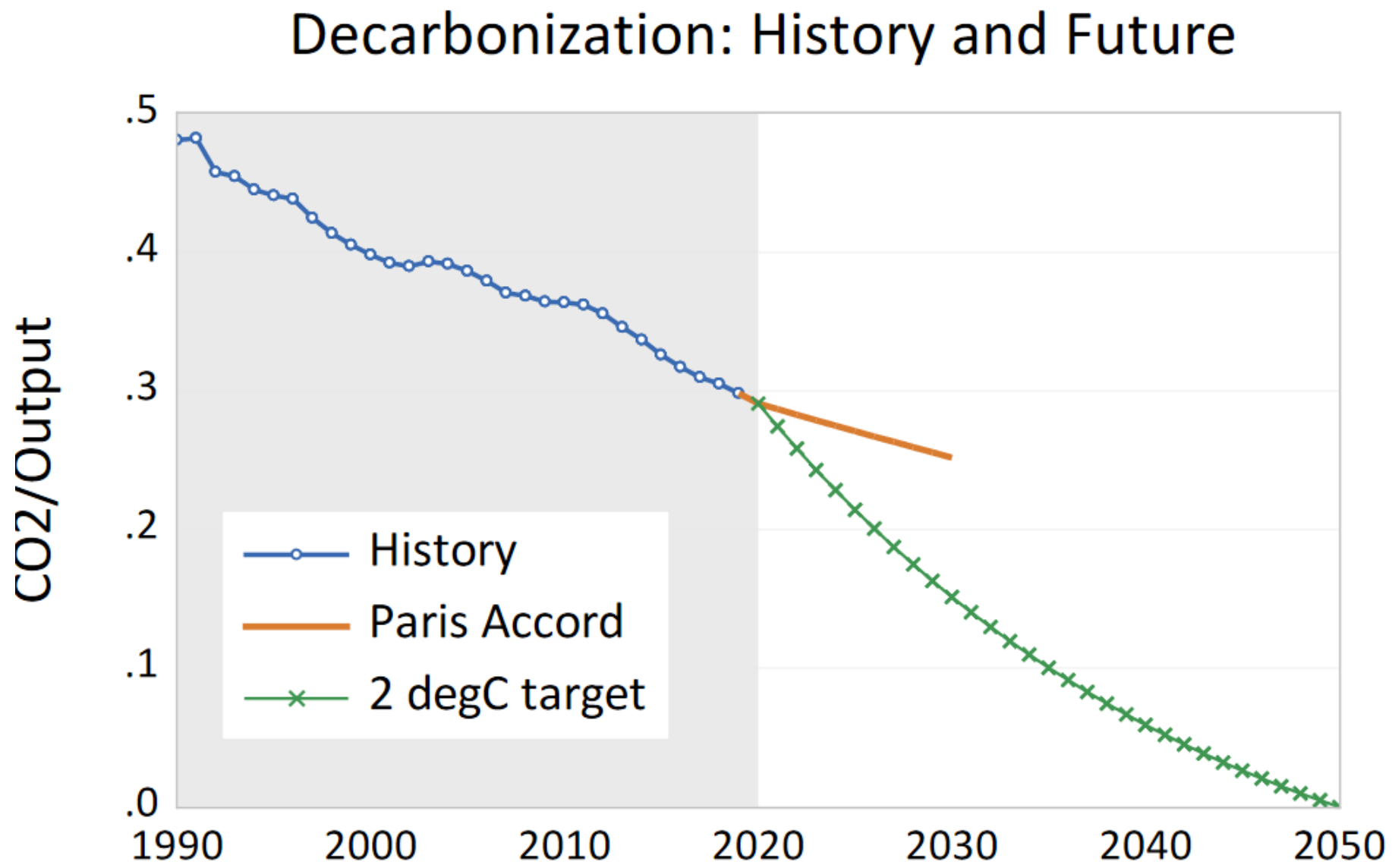
- What have we learned according to Nordhaus:
  - Very little carbon pricing
  - With very little coverage: muddled, fragmented & low
  - Collapse of Kyoto agreements: international climate policy is at a dead end
  - Not enough investment in green technology: double externality (global warming and learning by doing)
  - Huge fossil fuel subsidies, especially coal
- See next 7 slides from presentation by Nordhaus

- So there are obstacles (to be discussed now) and need for big flywheel effects (to be discussed later)

Global CO_2 emissions



Source: Nordhaus (2021, Markus Academy Webinar)



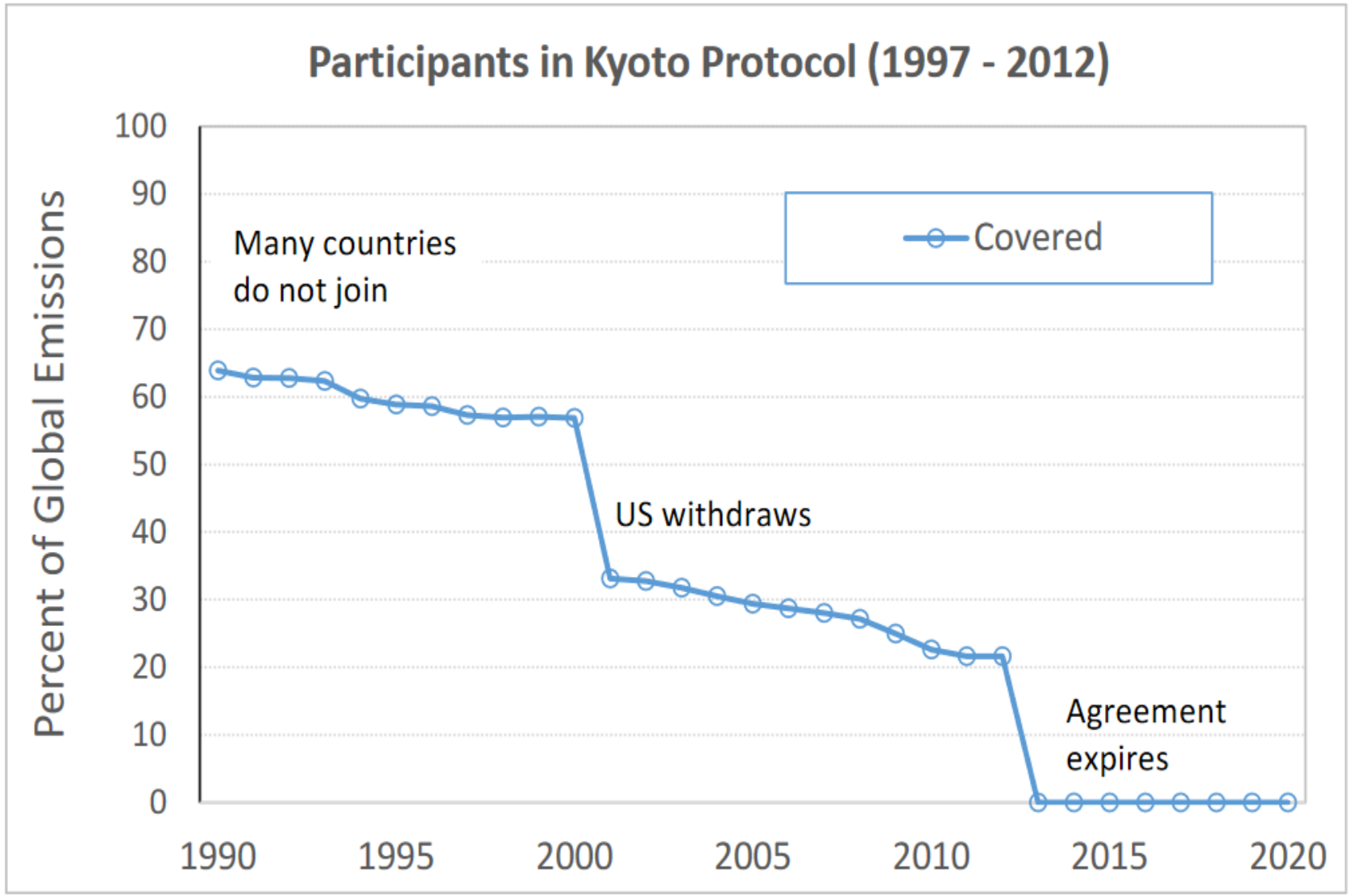
Source: Nordhaus (2021, Markus Academy Webinar)

The carbon price landscape, 2019

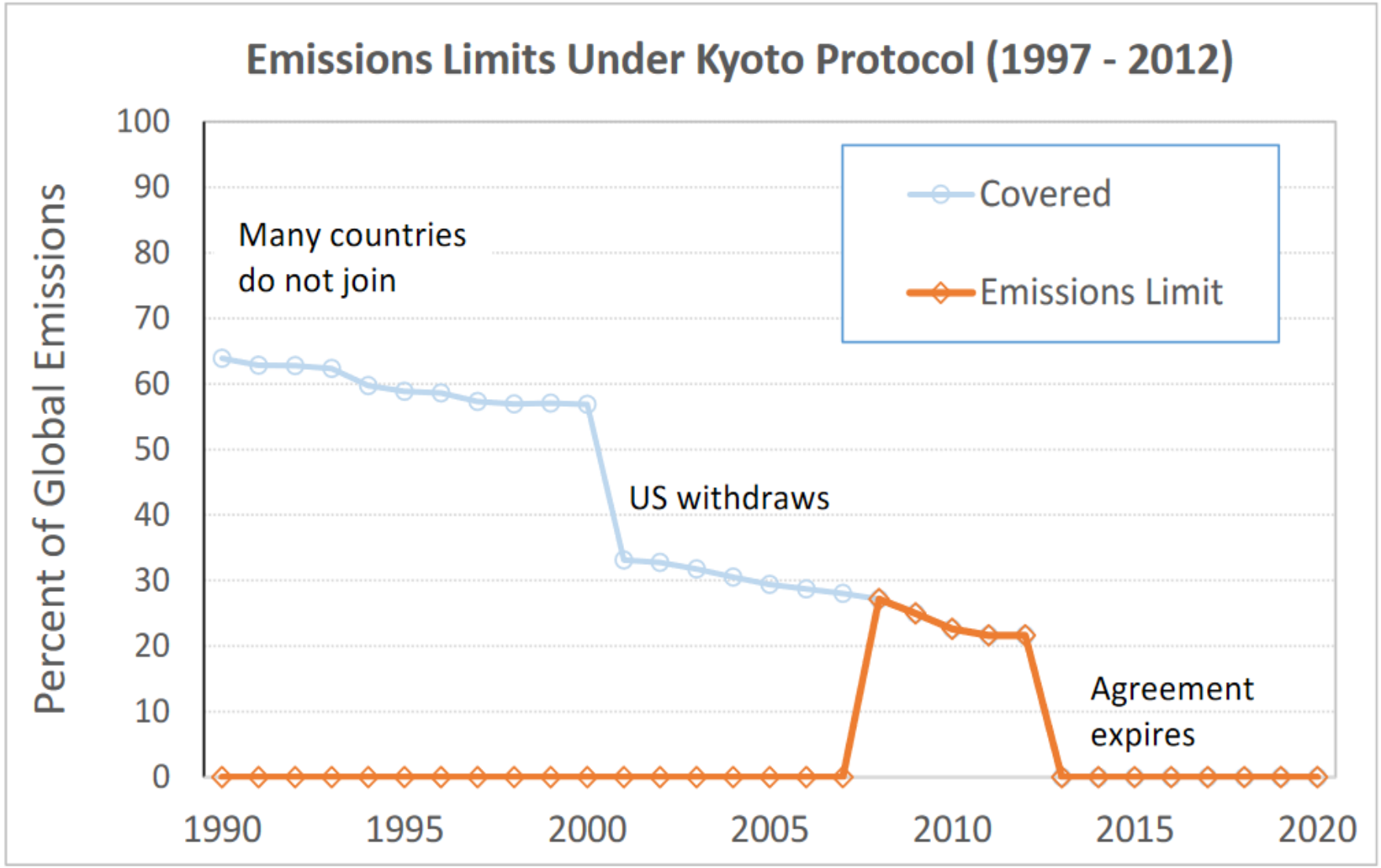
Region	*Percent of region covered by price*	*Carbon price ($/tCO2)*	*Effective price ($/tCO2)*	*% of global emissions*
Sweden	40	127	50.8	<1
Norway	60	59	35.4	<1
Switz	33	96	31.7	<1
BC	70	26	18.2	<1
France	33	50	16.5	1
Calif	85	16	13.6	2
ETS	43	25	10.8	8
Japan	70	3	2.1	5
Argentina	20	6	1.2	<1
Chinese cities	40	3	1.2	1
Northeast US	18	5	0.9	1
Mexico	45	1	0.5	1.5
Uncovered	100	0	0.0	80
Global average			**1.7**	

Source: World Bank

Source: Nordhaus (2021, Markus Academy Webinar)

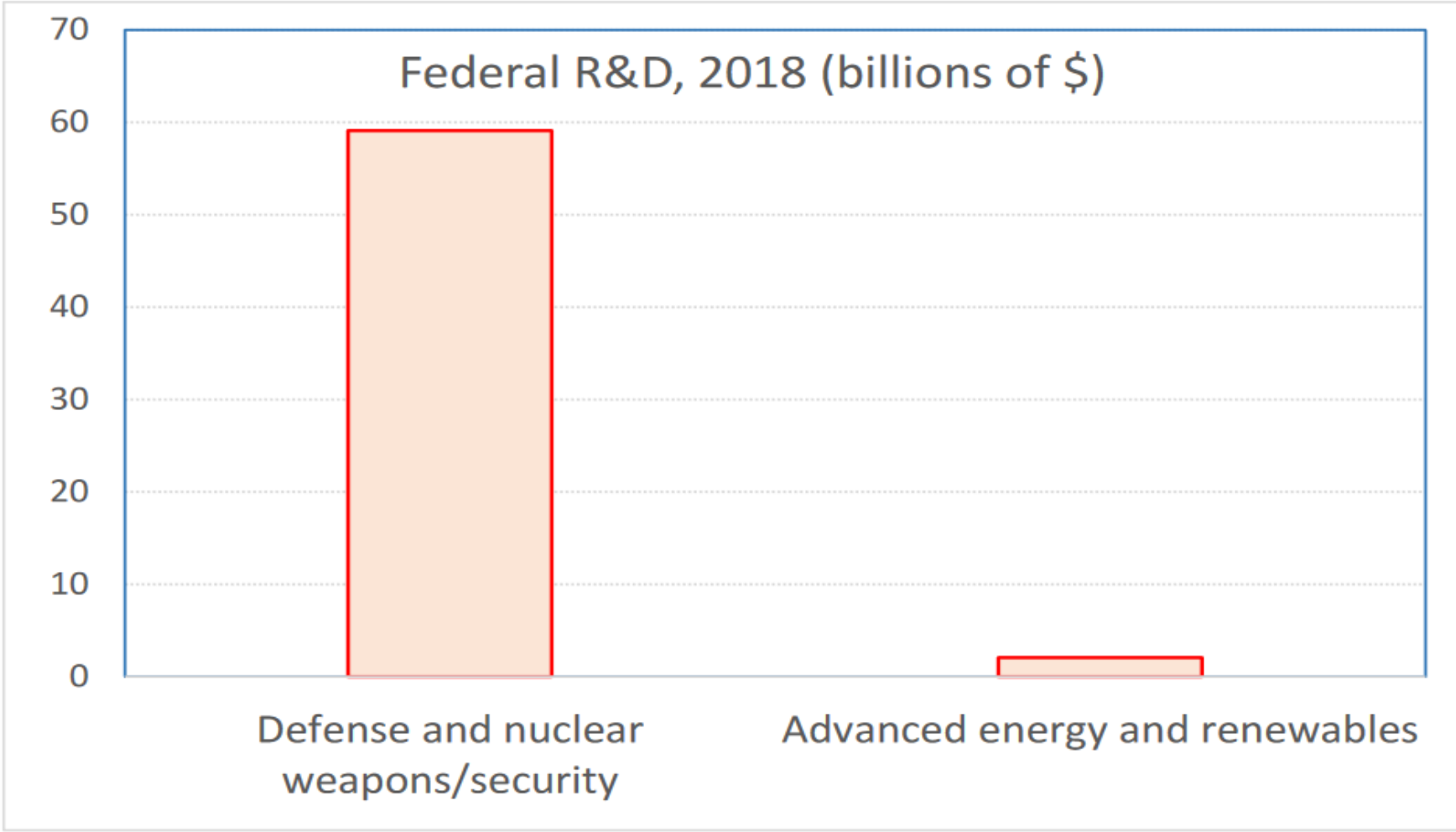


Source: Nordhaus (2021, Markus Academy Webinar)



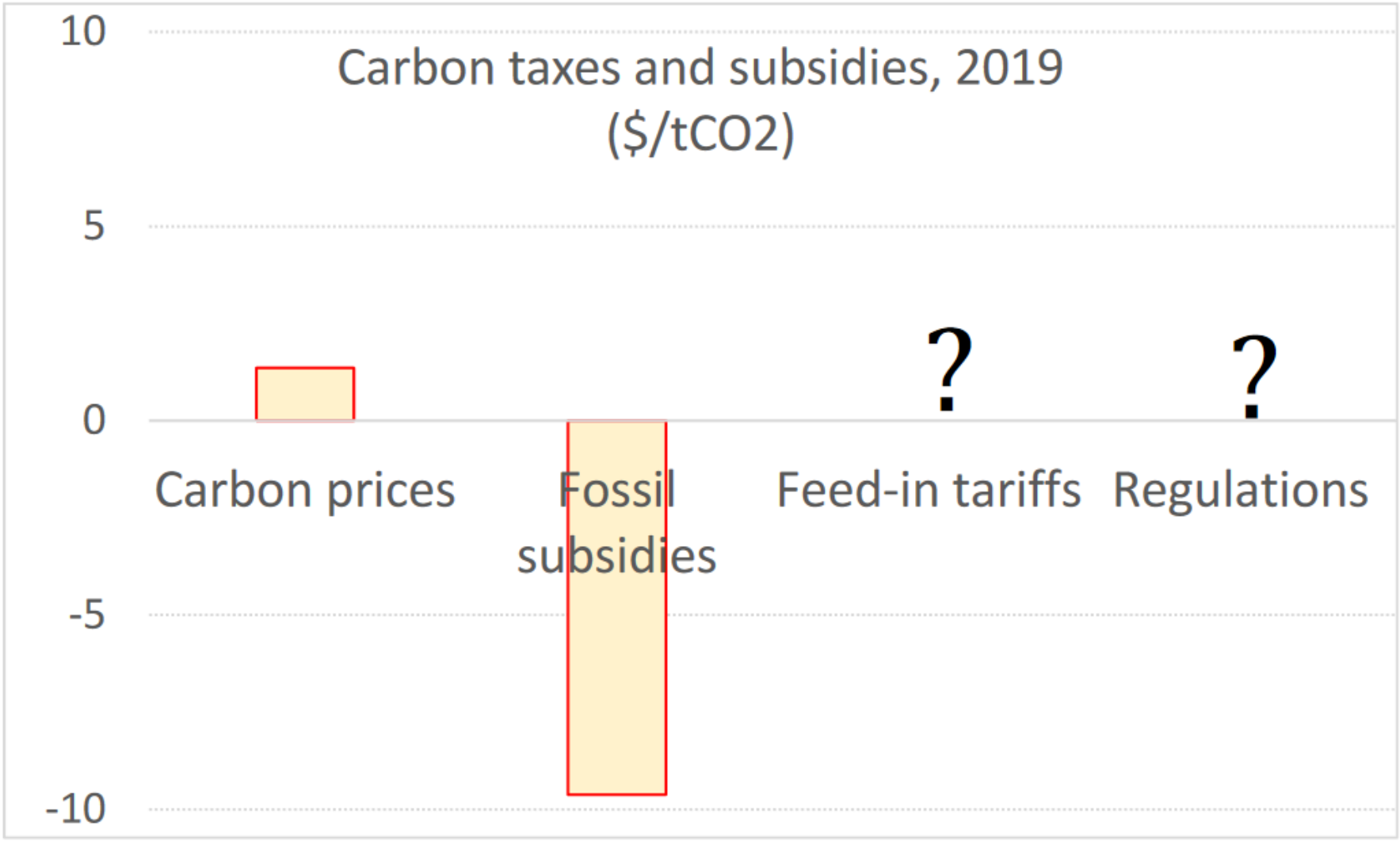
Source: Nordhaus (2021, Markus Academy Webinar)

Federal R&D: Military v. Green Energy



Source: National Science Foundation

Source: Nordhaus (2021, Markus Academy Webinar)



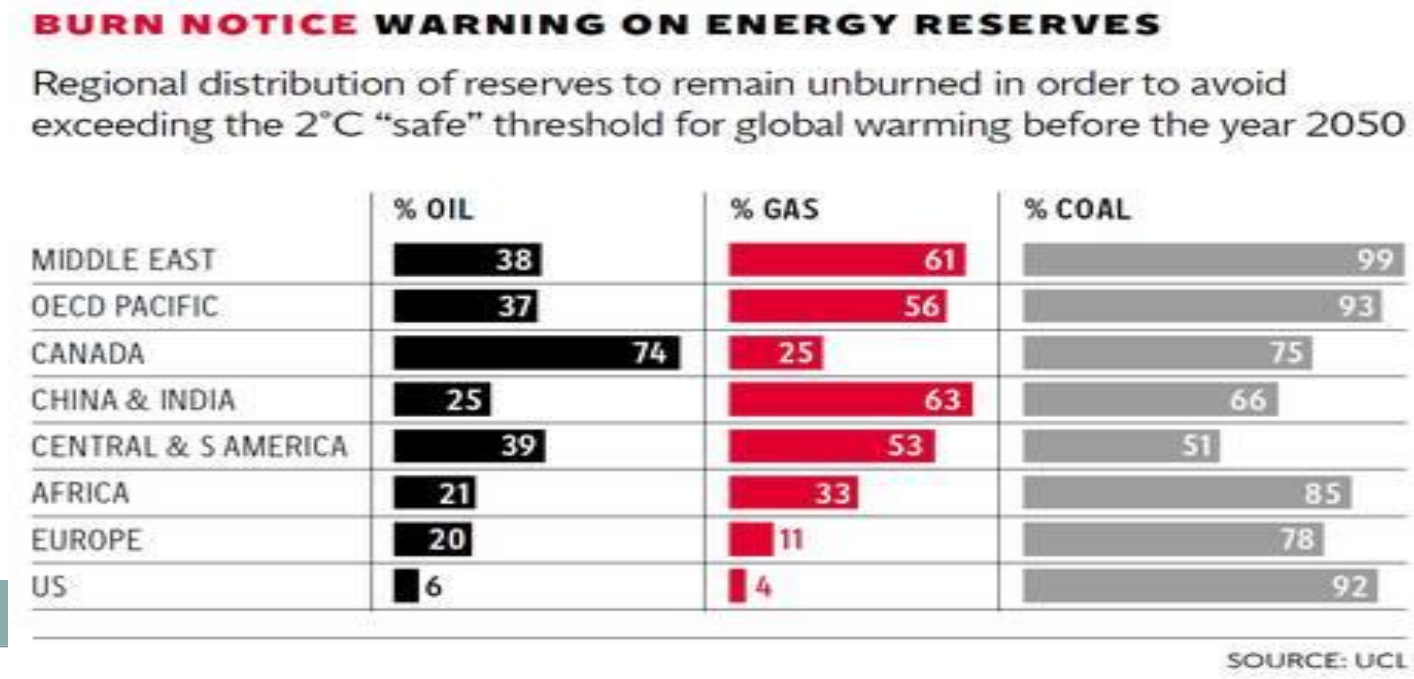
Source: Nordhaus (2021, Markus Academy Webinar)

OBSTACLE 1:
RISK OF STRANDED CARBON ASSETS

- To keep global warming below 2 or 1.5 degrees the world can only burn a couple of hundreds or tens GtC.
- Reserves of big oil and gas companies are much bigger and that is not counting reserves of the state companies.
- If climate policy is credible, serious risk of stranded fossil fuel assets and may as well short the oil and gas majors.
- What should Russia, Nigeria or Algeria do? Race to burn the last ton of carbon?
- Ongoing explosion of carbon discoveries and reserves cannot go on if planetary warming has to stay below 1.5 degrees Celsius. Need carbon pricing and climate club.

McGlade and Ekins (2015, *Nature*)

- Globally keep 1/3 of oil (Canada, Arctic), ½ of gas and 4/5 of coal (mainly China, Russia, US) reserves unburnt. Reserves are 3x and resources 10-11x the carbon budget. In Middle East 260 billion barrels of oil that should not be burnt.



Peak demand is the new *peak oil*, even more with covid-19

"[Investors'] biggest fear is that oil demand growth is no longer a given in perpetuity, with some predicting that by the end of the next decade the industry could be facing a peak in consumption, as government policies try to curb the use of fossil fuels."

"After all, no chief executive wants to be left holding multibillion-dollar oilfields the world no longer wants or needs."

A Shakespearean moment

The Big Read Oil + Add to myFT

Oil producers face their 'life or death' question

Fear of an imminent peak in demand means companies are less likely to invest. So does that make shortages and a price rise inevitable?

Why do assets get stranded?

- (1) surprise intensification of climate policy and (2) irreversibility of or costs for adjusting investment in dirty capital stocks.
- Stranded assets imply scrapping of dirty capital and discrete crash in share prices of carbon-based industries. Hence, **carbon bubble**.
- Dirty and clean capital in final goods production.
- Carbon-based investments in electricity generation.
- Not just exploration and exploitation investments by oil, gas and coal industry (locking up carbon) but also investment in electricity, cement, steel, etc. at risk.

Stranded capital in power industry

- Pfeiffer et al. (2016): "2°C capital stock" = if operated to the end of its normal economic lifetime, implies warming of 2°C or more (with 50% probability).
- Using IPCC carbon budgets & AR5 scenario, "2°C capital stock" is reached in 2017 even if other sectors do their share. Hence, no new emitting infrastructure can be built unless other infrastructure is scrapped or retrofitted with CCS!
- Pfeiffer et al. (2017) show that keeping warming below 1.5-2°C cuts utilisation of coal-fired electricity in the period up to 2050 from 60 to 29%.

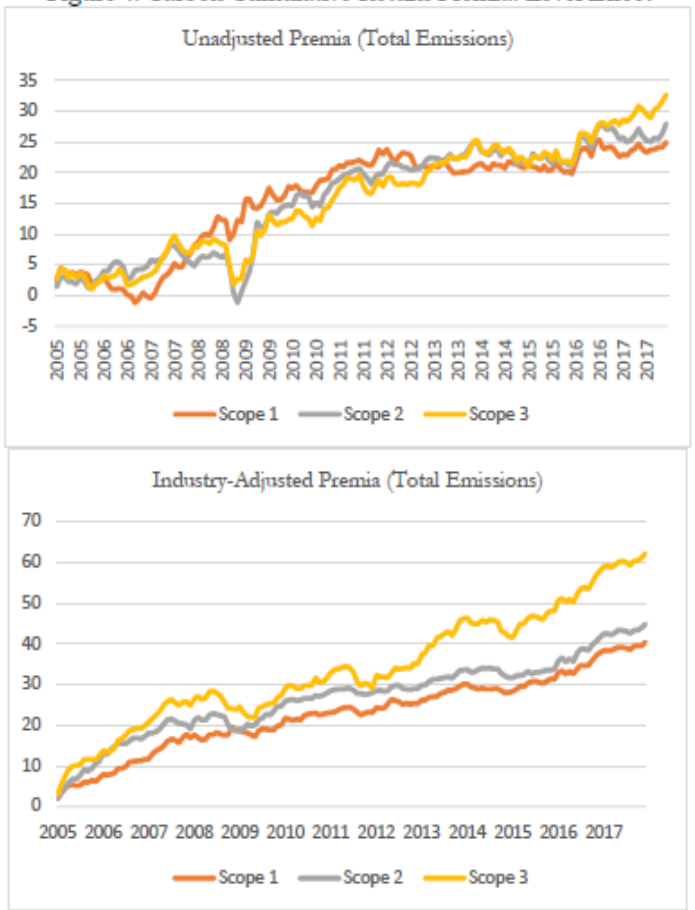
Oversight and regulatory authorities

- Governors of central banks have warned for carbon bubbles and financial and fiduciary risks of holding large investments in fossil fuel; e.g., Carney (2015).
- Insurance companies and especially pension funds should be concerned too.
- Need 2°C stress tests for investment portfolios!
- Not clear which capital market regulators are held responsible for carbon-related systematic risks and who is responsible for ensuring that full corporate disclosure of carbon risks takes place.
- Follow Sweden and the divestment campaign?

Mixed Empirical evidence

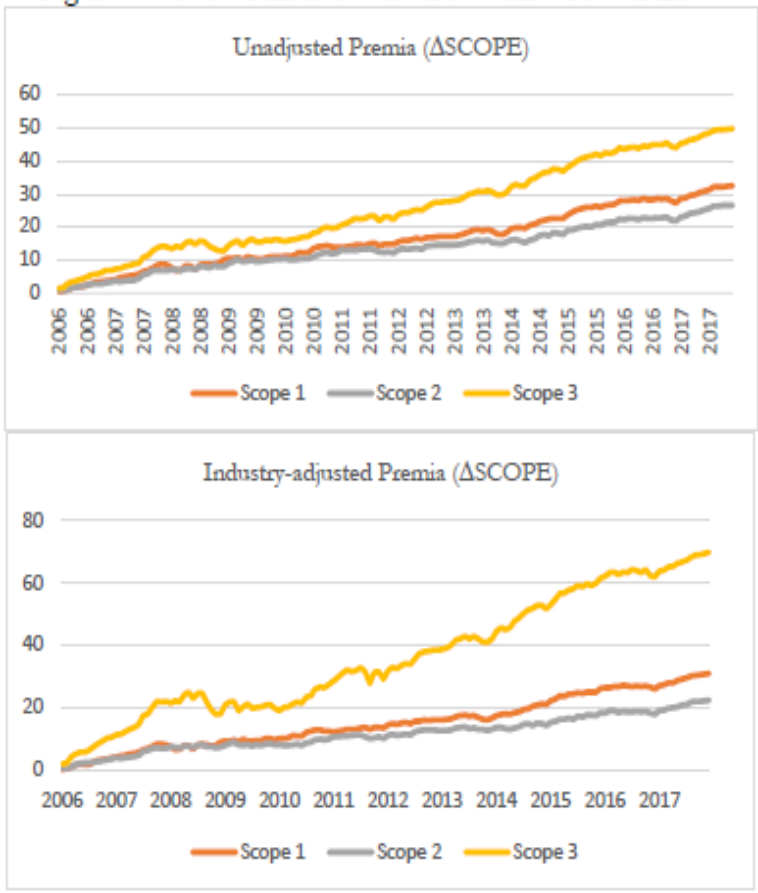
- Bolton and Kacperczyk (2020a): carbon-intensive firms (steel, cement, oil majors, etc.) in US show higher stock market returns after controlling for size, book to market, momentum, etc. as investors already demand compensation for the carbon risk; this carbon risk premium cannot be explained via unexpected profitability or other risk premia (see next three slides for a snapshot of results)
- Bolton and Kacperczyk (2020a): similar exercise for cross section of 14,400 firms in 77 countries shows evidence of *rising* carbon risk premia for carbon-intensive stocks
- Institutional investors are divesting away from carbon-intensive firms

Figure 4. Carbon Cumulative Return Premia: Level Effect



Note: Figures plot cumulative carbon premia with and without industry fixed effects.

Figure 5. Carbon Cumulative Return Premia: Growth Effect



Note: Figures plot cumulative carbon premia with and without industry fixed effects.

Being stranded with fossil fuel reserves? Climate policy risk and the pricing of bank loans – Delis, de Greiff and Ongena (2019)

- Evidence 2007-17 consistent with carbon bubble: banks do not price in climate policy risk in their lending decisions, but post 2015 banks are pricing this risk in
- Statistically significant post 2015, so banks are pricing in climate risk post 2015 (i.e. there is no carbon bubble .. anymore)
- 1 standard deviation increase in CPE implies a higher AISD by 16 basis points
- 1% increase in fossil fuel reserves implies an increase of 6.9 basis points in AISD
- Results also hold when controlling for monthly oil price
- **Other findings:** green banks charge fossil fuel firms much higher interest
- Banks charge higher interest on loans in view of carbon risk

OBSTACLE 2:
TIME SCALE AND HEDGING CLIMATE RISK

- Climate risks are very, very far in the future.
- So need very low discount rates for discounting benefits 100 years from now.
- A climate hedge is an investment project that yields a really big return in 100 or 200 years if global warming then turns out to be much hotter than expected.
- What are these projects apart from dykes, water defences, etc?

OBSTACLE 3: BIG ASK (TWICE)

- International free riding. Climate clubs?
- Big ask from current generations to make sacrifices to curb global warming for future, perhaps much richer, generations → run up debt to give transfers and get intergenerational win-win outcome
- Kotlikoff et al. (2021): Intergenerational win-win (shows it in an impressive OLG setup)
- Remarkably, also international win-win!
- Pension-climate deals?

OBSTACLE 4: SPATIAL CARBON LEAKAGE

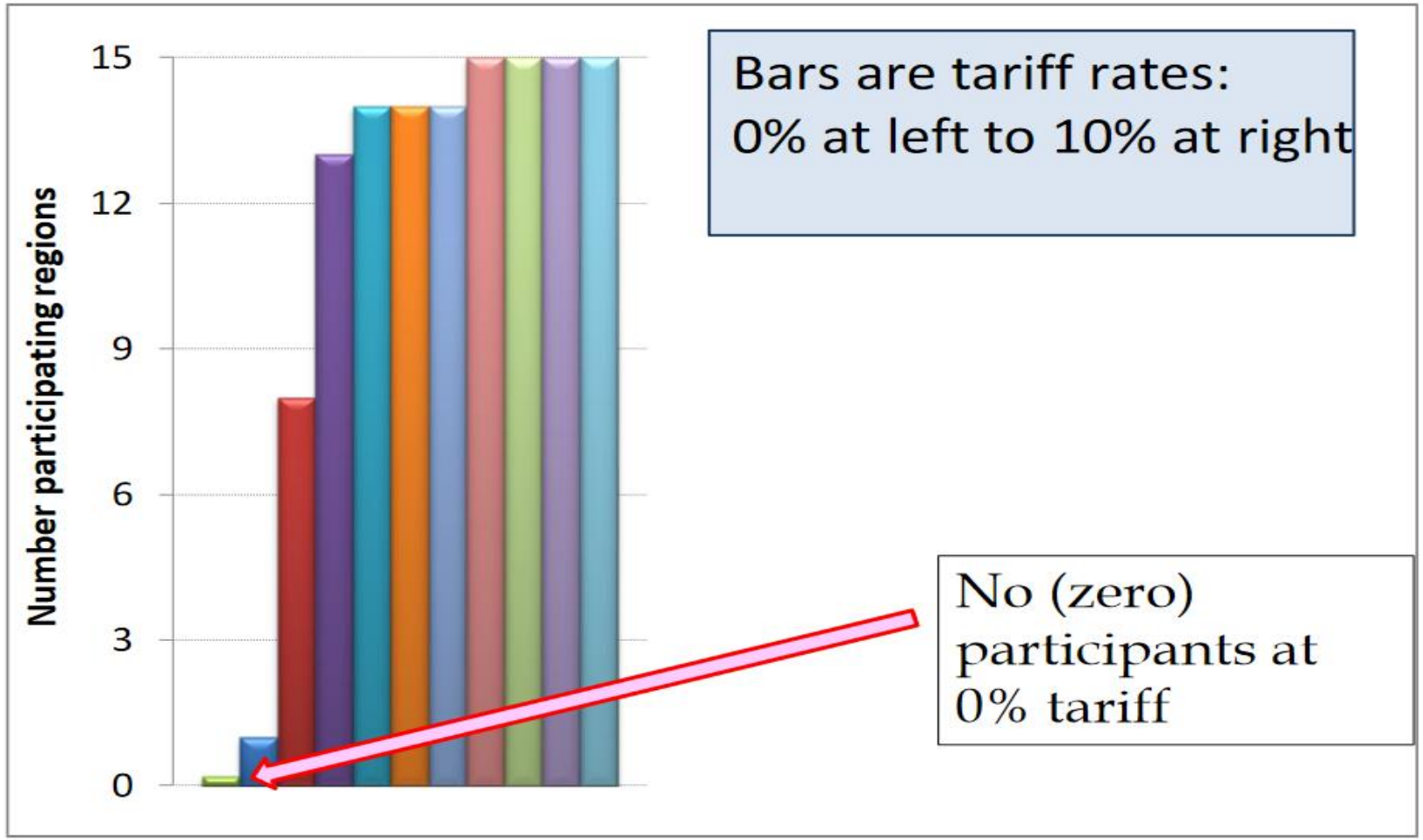
- **Carbon leakage**: if climate countries put a price on CO2 emissions, some of it will be shifted to producers especially if fuel demand is elastic and supply inelastic. Gift to non-climate countries! Renders CO2 policy ineffective unless it truly is a global deal including at least China and India. Need for deep climate cooperative deals between US, China, India and EU.
- **Border tax adjustments**. If not possible, output-based rebates for industries that suffer most from dirty competition from abroad.
- **Coase**: bribe … buy up forest
- For uniform carbon price throughout the world, need international transfers from rich to poor countries.

International challenges

- Problem is complicated, since big polluters are rich and big polluters to be (China, India) want to develop. China has geopolitical agenda which we do not like, but we need China to stay below 2 degrees

- **Climate club**: Need international flywheel effects: e.g., Nordhaus (2015, *AER*) suggests "climate clubs" – the more people joint, the more attractive it is to join
- Cf. the Paris club to deal with hold-out problem in debt restructuring: fight free riding, need critical mass, and leverage up the club
- **Global refunding scheme**: pay a fee into a global fund which is invested in long-run assets and only earns a return if agreed emissions cuts have indeed been realised (Gernsbach, Hummel and Winkler, *CESifo* WP6385, 2017)
- **Technology and self-enforcing climate treaties:** Harstad, Lancia and Russo, 2021

Example of Climate Compact Participation



Example for $50/ton minimum carbon price.

Source: Nordhaus (2021, Markus Academy Webinar) and (2015, *AER*)

OBSTACLE 5: GREEN PARADOX

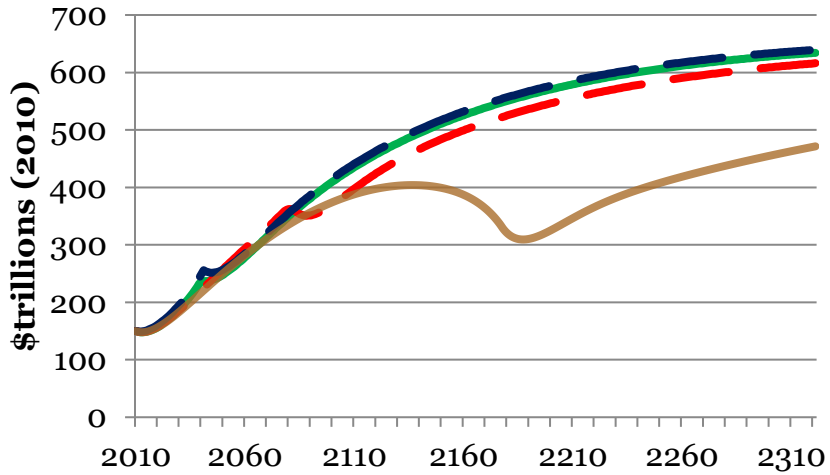
Politicians: procrastinate and prefer carrot to the stick. Europe has focused on renewable energy subsidies, not carbon pricing.

Anticipation of green policies: sheiks pump oil faster to avoid capital losses, which accelerates global warming.

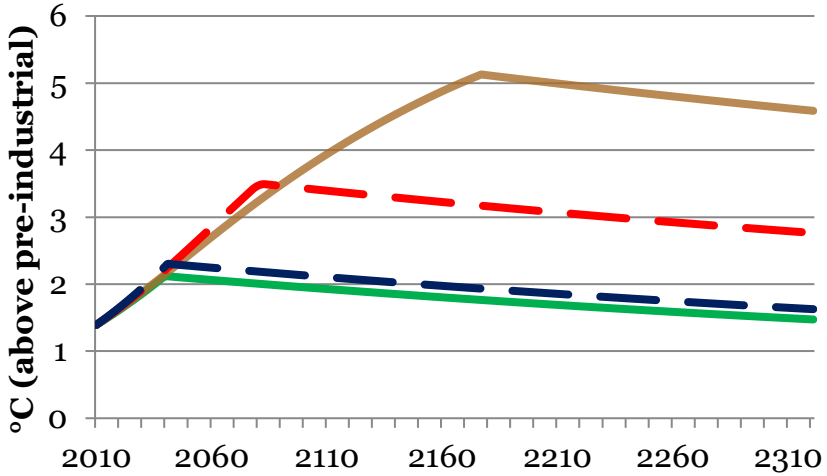
Welfare goes up if price elasticity of demand is low, of supply is high, and ecological discount rate is high.

Next slide is from Rezai and van der Ploeg (2017, *MS*).

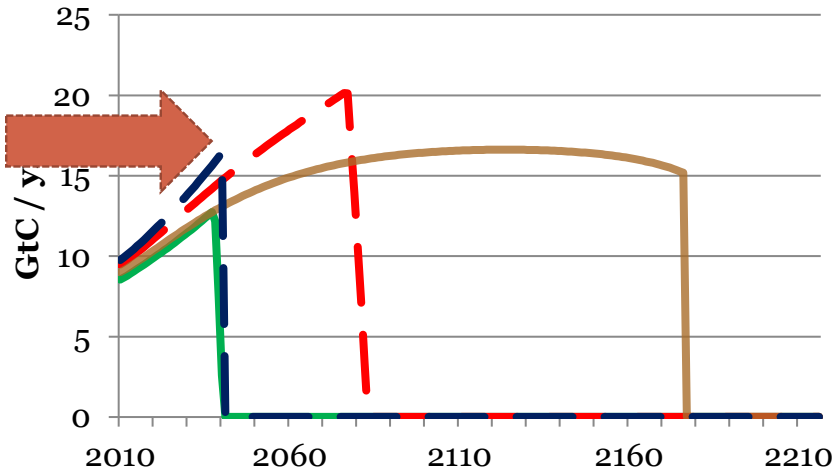
Capital Stock, K_t



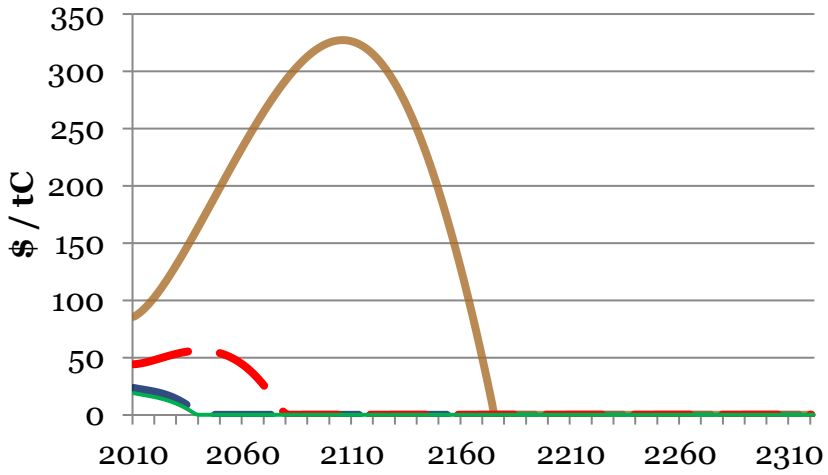
Mean Global Temperature, T_t



Fossil Fuel Use, F_t



Hotelling Rent, θ^s_t



first-best

subsidy no commitment

subsidy with commitment

laissez faire

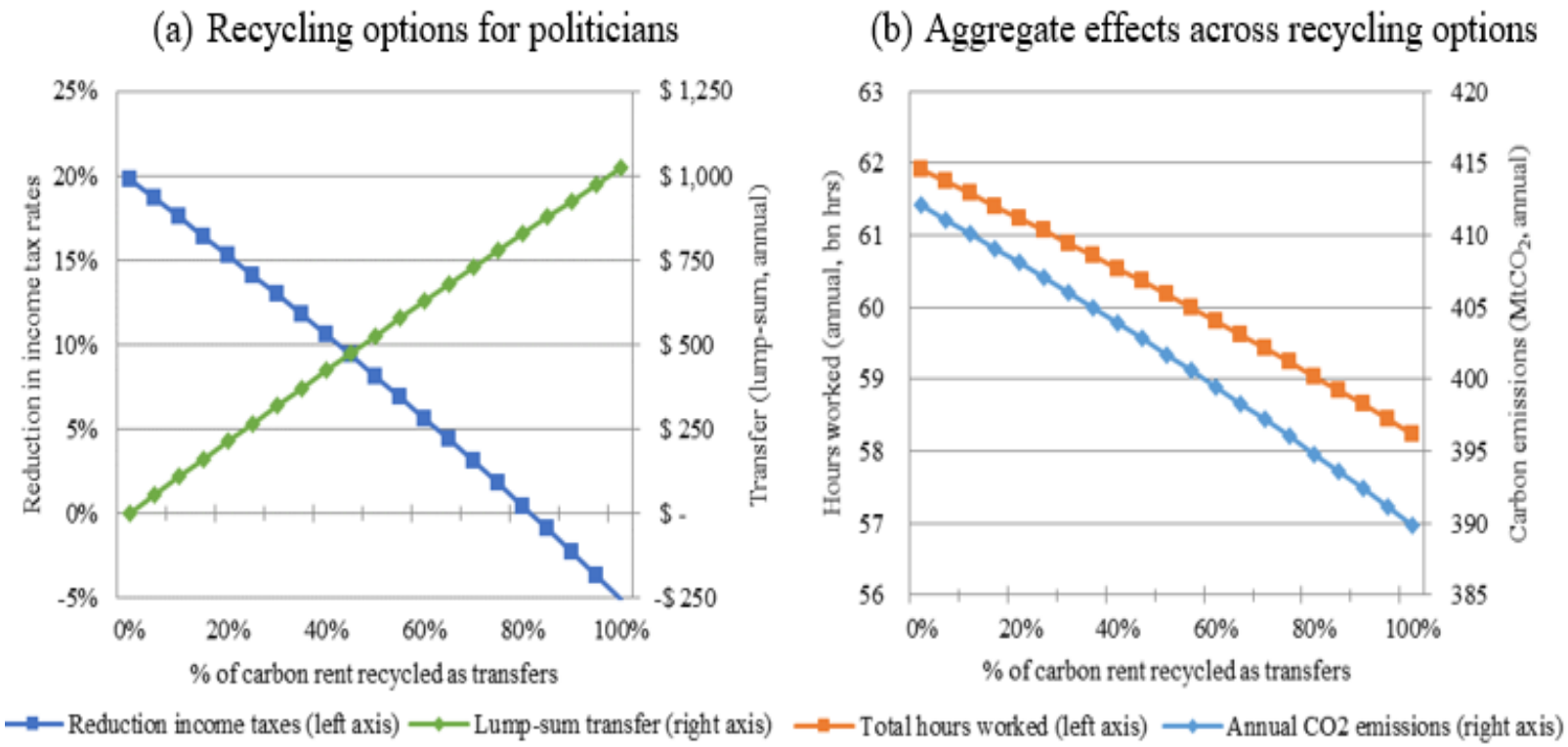
OBSTACLE 6: POLICY FAILURE & CAPTURE

- Non-price controls are susceptible to capture: energy efficiency standards, mandatory sequestration, renewable mandates, etc.
- Bio-fuel mandate puts up land price & creates food poverty.
- Too many exceptions: e.g. grandfathering in ETS.
- Government picks winners & faces lobbies: solar, wind, …
- Solar costs are dropping dramatically: infant industry? Subsidies tend to become addictive.

OBSTACLE 7: CLIMATE POLICY HURTS THE POOR RELATIVELY MORE

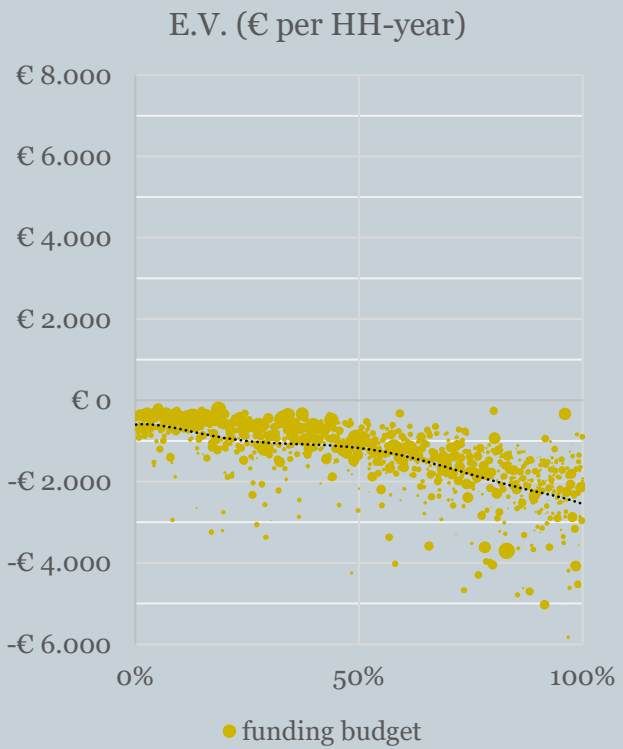
- Fossil fuel subsidies are staggering $5.3 trillion a year (6.5% of world GDP) versus renewable subsidies of only $120 billion/year.
- Get rid of these subsidies asap, but dirty coal is consumed relatively more by the poor.
- Replace subsidies with general tax deductions for the poor, which is a cheaper way to redistribute.
- Avoid “yellow vests” protests.
- If needed, also insulate roofs for the poor, subsidies for electrical cars, tax credits for energy-efficient buildings.

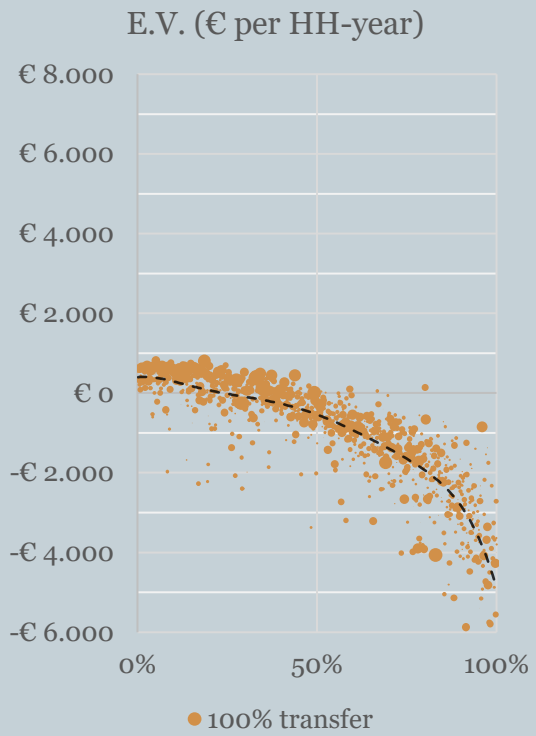
Figure 6: Recycling options of pricing carbon at €100/tCO$_2$ and their aggregate effects

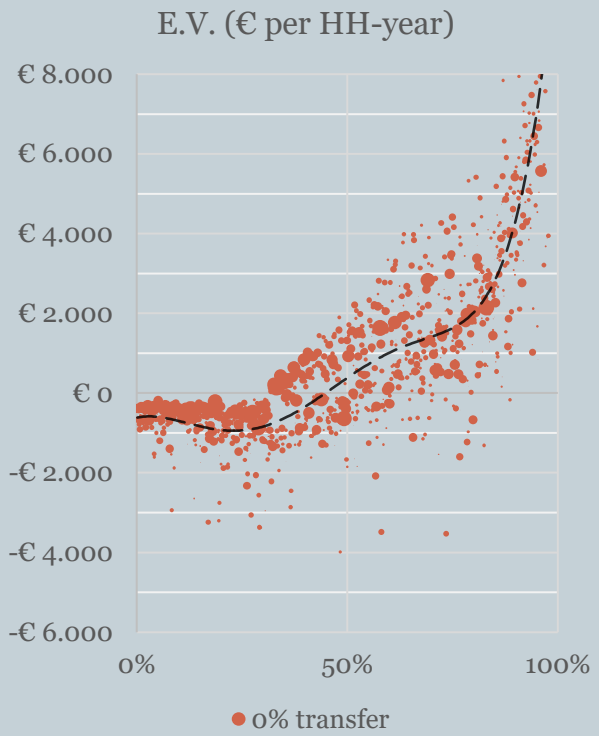


Source: van der Ploeg, Rezai and Tovar (2021, working paper)

Distributional effects: equivalent variations for different recycling schemes

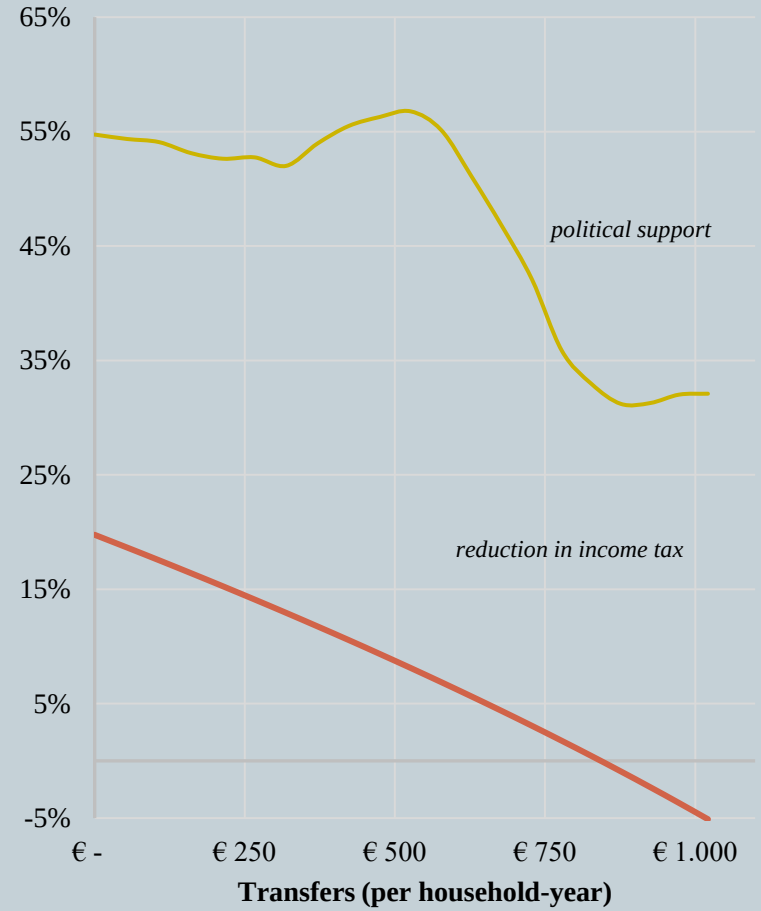


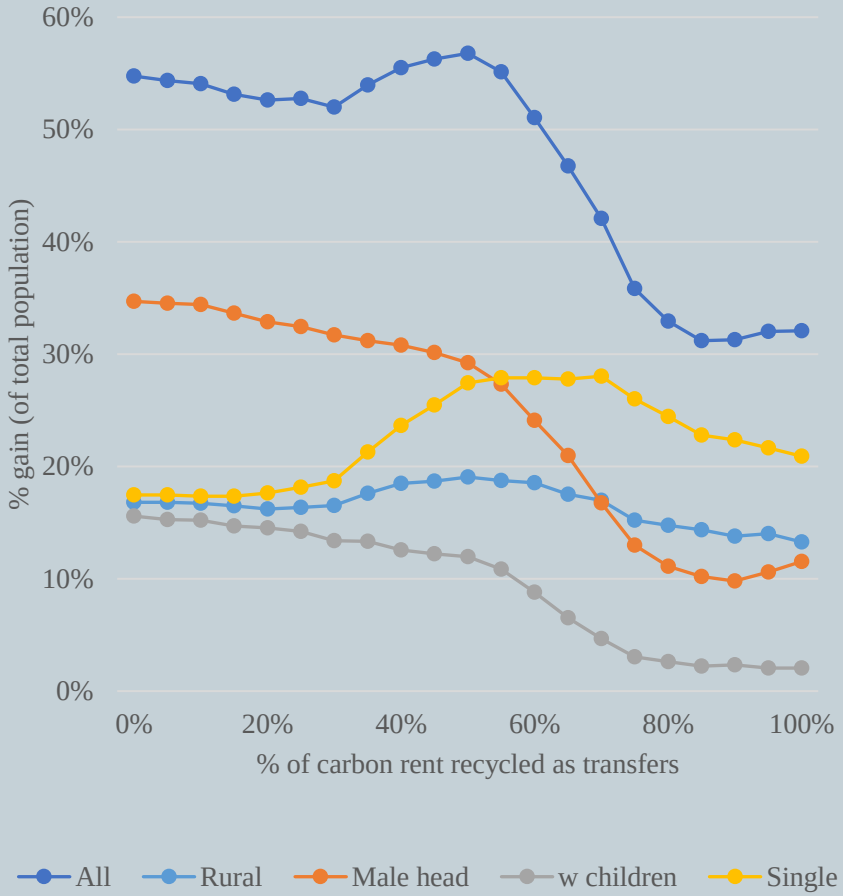




Source: van der Ploeg, Rezai and Tovar (2021, working paper)

Political arithmetic of carbon pricing





Source: van der Ploeg, Rezai and Tovar (2021, working paper)

Obstacle 8: Spatial needs

- “Spatial planning”: need space for windmills, solar panels, hydrogen factories and CCS both in the landscape and in the soil.
- This is a huge challenge – much bigger than the (misguided) Betuwe rail line.
- NIMBY politics.
- Watts (Joule/second) per m2: fossil fuel 500-10,00, nuclear 500-1000, solar 5-20, hydropower 5-50, wind 1-2, wood and other biomass <1 (Gates, 2021).
- How much power needed: world 5,000 GW, US 1,000 GW, mid-size city 1GW, small city 1MW, US house 1 kW

Q&D calculation

- Area of the Netherlands: 41,542 km2 or
- Fossil fuel production capacity of the Netherlands: 225 billion kW (i.e. trillion Joules per second)
- In 2018 gas was 55%, wind and solar 13 and 11% of total energy production.

- So if fossil fuel is turned into wind with average of say 1.5 W/m2, we need 225 GkW/(1.5 x 41.542K) or roughly 3.6 Gm2. or 3600 km2. This corresponds to a square of 60km by 60km.

- Do we have this space?
  - Amsterdam and Rotterdam have areas of 219 and 319 km2 of which a quarter and a third are water. Need 6.7 times the area of Amsterdam and Rotterdam.
  - We need 9% of the surface area of the Netherlands: huge.

OBSTACLE 9: CLIMATE SCEPTICISM

Pay-offs	Believe in God	Do not believe in God
God exists with prob π	$+\infty$ (infinity)	$-\infty$ (minus infinity)
God does not exist with prob $1-\pi$	-1 (finite loss)	$+1$ (finite gain)

PASCAL' WAGER:

$\pi \times \infty + (1-\pi) \times (-1) = +\infty$ always exceeds $\pi \times (-\infty) + (1-\pi) \times (+1) = -\infty$

provided π is positive, however small.
Hence, agnostics (doubters) should believe in God.
Only atheists have $\pi = 0$ and should not believe in God.

Table 3: Welfare gains under climate model uncertainty

(% initial world GDP, relative to BAU under the science view)

Climate view	Price carbon	Don't price carbon
Science	17%	0%
Denier	34%	41%
min welfare	**17%**	0%
max regret	**7%**	17%

Key: Pricing carbon increase welfare by 17% if scientists are correct but lowers welfare by 7% if deniers are right. The welfare under carbon pricing is lower if climate scientists are right (17%) than if climate deniers are right (34%).

Table 4: Peak warming and carbon prices under different priors that deniers are correct

	Prior that deniers hold correct view										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Peak Warming	3.3 °C	3.5 °C	3.6 °C	3.8 °C	3.9 °C	4.2 °C	4.5 °C	4.8 °C	5.4 °C	6.3 °C	7.0 °C
Carbon Price (2020, per tCO2)	$ 21.1	$ 19.1	$ 17.1	$ 15.0	$ 12.9	$ 10.8	$ 8.7	$ 6.6	$ 4.4	$ 2.2	$ 0.0

Key: Peak warming levels increase from 3.3°C to 7°C and carbon prices (in 2020) decrease from $21.1 to $0 per tCO2 as the prior that deniers are correct, π, rises from 0% to 100%.

Source: van der Ploeg and Rezai (2019, *EER*)

PANDEMIC, BIODIVERSITY AND CLIMATE

- The Covid-19 pandemic has had surprisingly little effect on economic activity.
- But has had huge effects on inequality: elderly, people with poor health and low financial buffers, those in vulnerable professions are hit most.
- If vaccines come quick enough, we can avoid new variants of the virus causing damage.
- These virus will come and go. Especially given the deplorable and worsening state of biodiversity.
- We need a resilient planet and a resilient economy

WHAT TO DO FOR GREEN RECOVERY

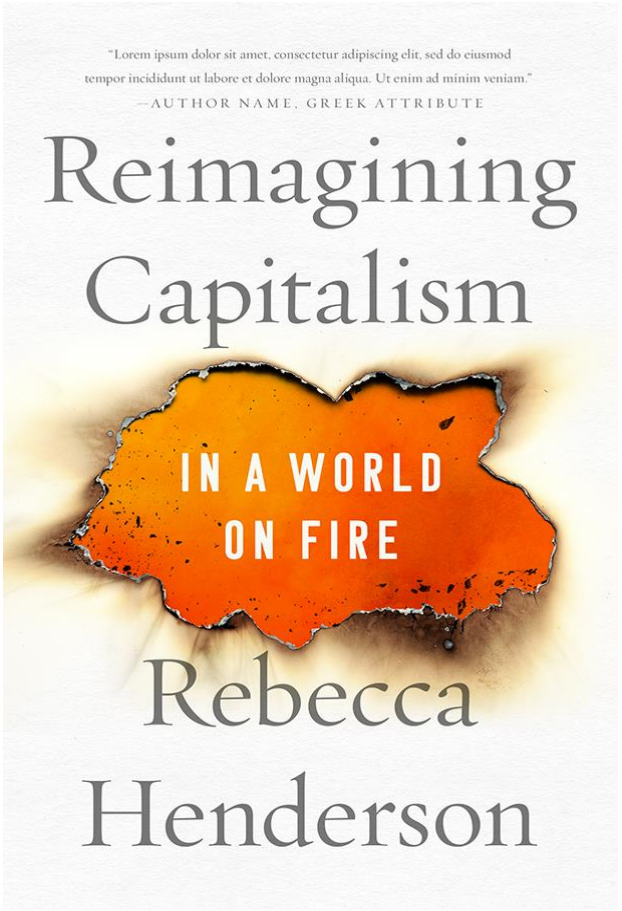
- Get rid of explicit and implicit fossil fuel subsidies.
- Moratorium on coal
- From 2025 no more diesel- or petrol-based transport.
- Give a clear signal: start with say 40 EUR/tCO2 en let it rise at a rate of say 2% or 5% to 75 of 200 EUR/tCO2 in 2050 (cf. France starts with 40 and rise to 100 EUR/tCO2 in 2030; Sweden 100 EUR/tCO2; Finland, Norway, Switzerland also high CO2 prices).
- On top of European permit schemes.
- CO2 prices also has collateral benefits of less air pollution. These are local, so no international freerider problems.
- Subsidise green R&D to internalise learning-by-doing benefits.
- Each year delay makes realising our climate targets more costly.

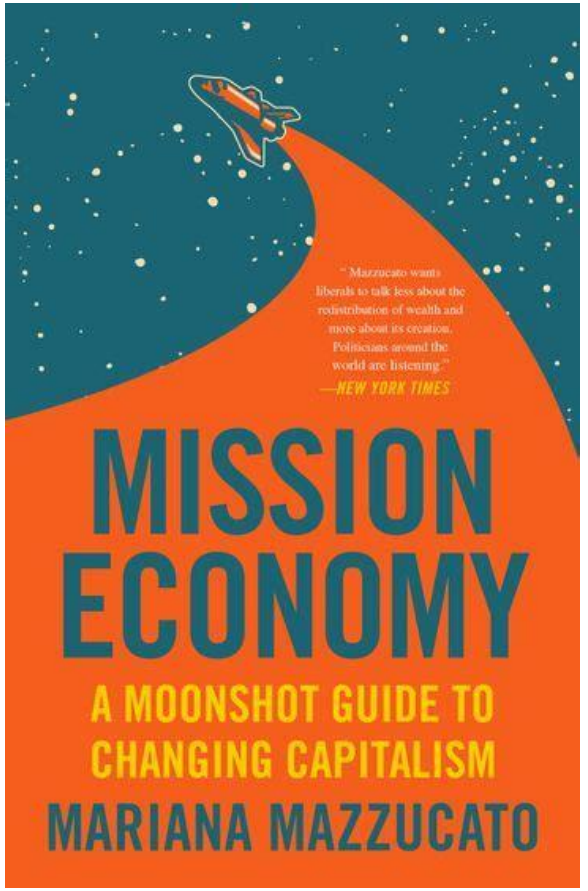
- Invest in clean infrastructure, efficient retrofitting of buildings, investment in education and training, natural capital investment, and clean R&D.
- Invest in control of pandemic (test, track and contain), vaccines, border checks & safe travel and trade, food security and shorter local supply chains including sanitary standards, renewable energy (batteries, solar, wind, electric vehicles), circular economy, ad secure ICT networks.
- Make sure new jobs and sectors are wherever possible Corona-proof (e.g. part-time in office, part-time at home, less commuting is win-win): improve resilience.
- “Create army of zero-carbon workers, retraining and redeploying those who can't work into different industries, from home insulation to wind turbine manufacture to tree planting”.
- Be aware: fossil fuel incumbents time and time again frustrate any green plan.

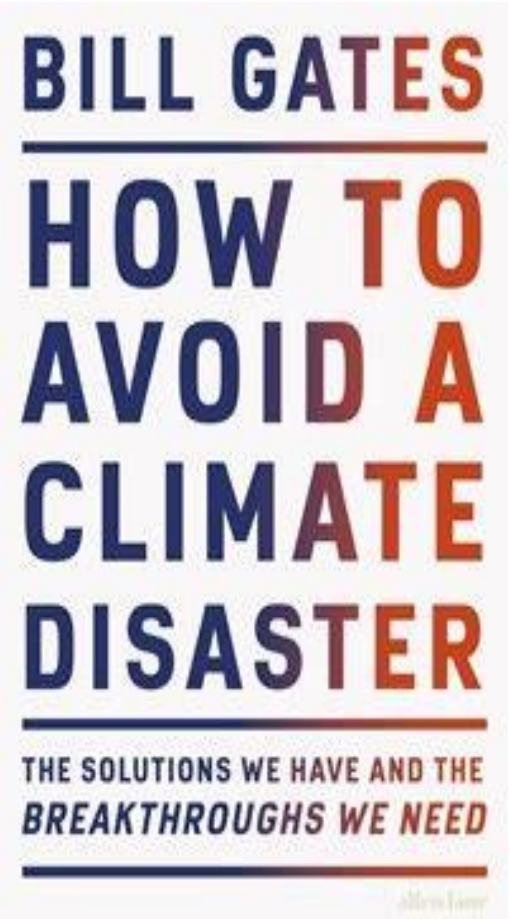
MEASURES FOR FINANCING GREEN RECOVERY

- Do not bailout carbon-intensive firms in the pandemic unless they fundamentally reform
- Make sure all firms are carbon-free or can prove that they capture and sequester all their carbon emissions
- Credit market imperfections in pandemic: soft and easy-to-access loans
- Part renewable energy subsidy to internalise learning-by-doing externalities and to get things going
- Government as launching customer and finance facilitator, especially cities
- Spatial planning pandemic and climate proof: central government, provinces, cities
- Golden Covid-19 opportunity: do not keep living zombies from the fossil era alive, but invest in the inevitable companies that are going to make the green transition possible (“never waste a crisis”)
- Independent carbon central bank: carbon reductions are too important to leave to the discretion of politicians (and lobby groups)

Three great books to read



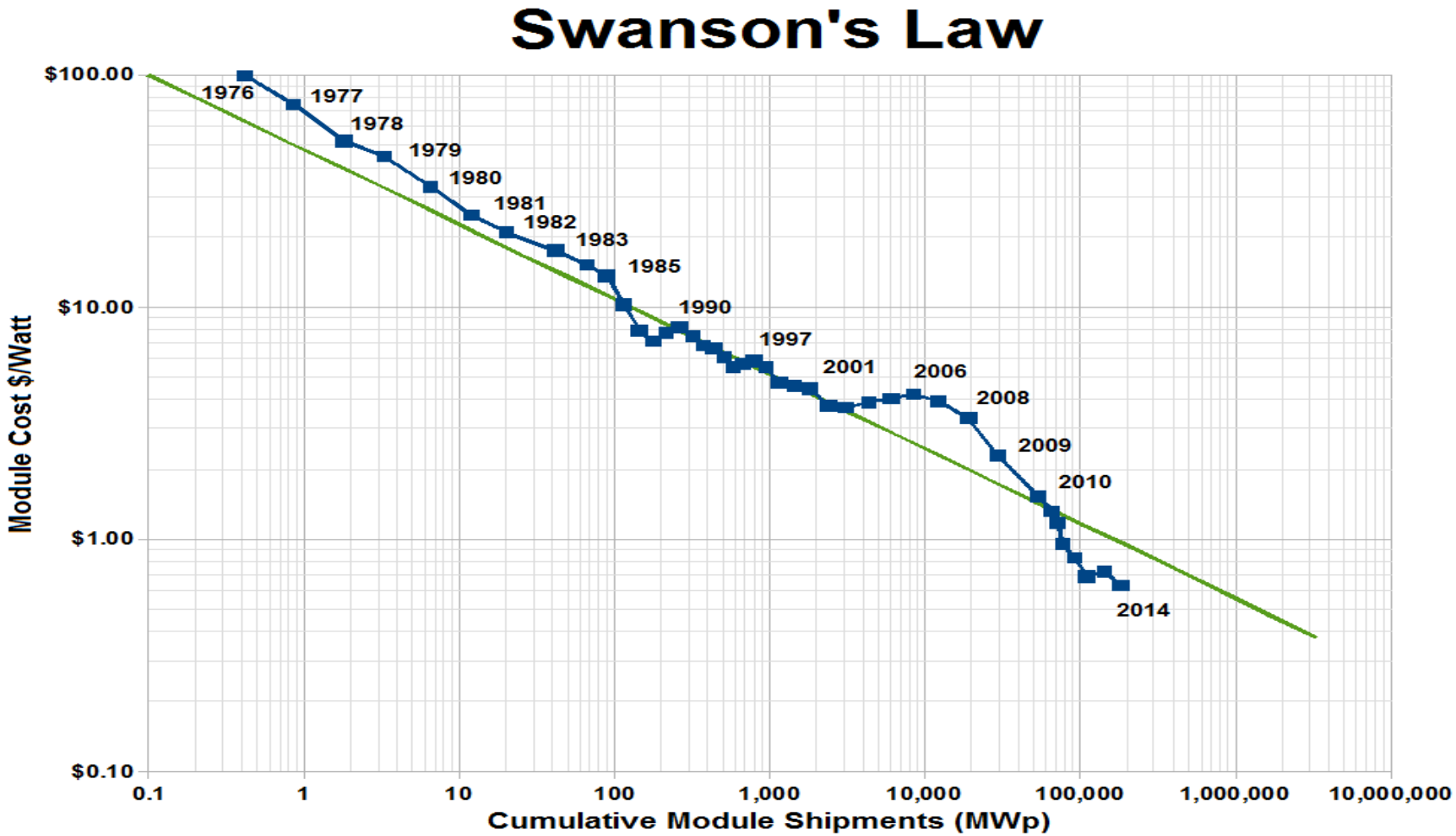




THE WORLD IS ON FIRE – Rebecca Henderson

- Triple crisis: 1. environmental (climate, biodiversity, oceans, etc.), 2. inequality and 3. collapse of institutions & threat to democracy.
- Makes a case for purpose-driven firms (business case for shared value), rebuilding institutions and bringing markets and government back in balance, and ***innovation***.
- Establish metrics to measure environmental and social impact of business practices
- Cooperate on sustainable, self-regulatory standards across whole industries
- Private sector support for democratic reforms.
- See also ***Mariana Mazzuato: A Moonshot Guide to Changing Capitalism*** on the role of government and corporations (see the speed of development of vaccines).

Note of optimism: cost solar panels drops 20% for every doubling of cumulative shipped volume



THE CLIMATE TRAP - BESLEY AND PERSSON

- Demand for green technology (batteries, electrical vehicles, heat pumps, etc.) depends on low-cost products being available.
- But supply of cheap products only becomes available if there is enough demand.
- **Socialisation of preferences**: as more and more people are environmentalist, more materialists turn green too.
- Political system cannot commit to future policies.
- Hence, all above leads to classic case of **strategic complementarities** leading to a climate trap.
- Need grand coalition of visionary politicians, business leaders and people in society to shift from bad to good equilibrium.

TIPPING THE WORLD BEFORE …

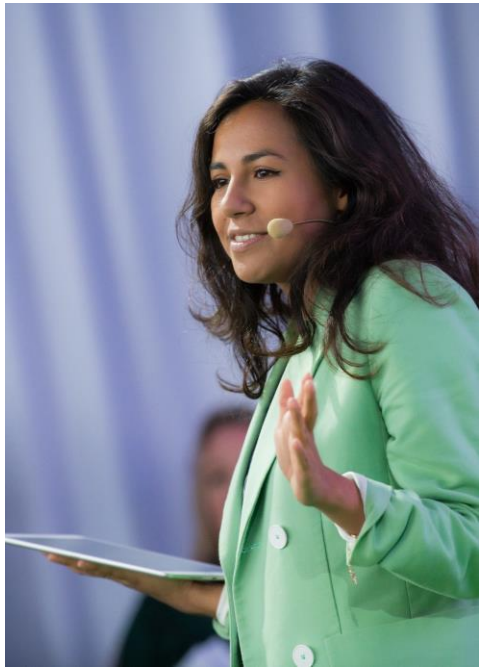
- We are at risk of lots of climate tipping points (Greenland and Antarctic Icesheet, permafrost, Gulf Stream, etc.) which will lead to abrupt system changes and gradual but sure heating up of the planet.
- We need **technological** tipping points (once cost of solar or wind plus storage is lower than that of coal, or gas), **social** tipping points (Greta Thunberg effect), **political** tipping points (e.g. via climate clubs and genuine leadership across politics and corporations).
- Mankind has always been inventive and will rise to the challenge but must not wait for it will be much costlier and might be too late.

HOW TO AVOID A CLIMATE DISASTER
Bill Gates (2021)

- To get to net zero, need adaptation and mitigation.
- Making things (cement, steel, plastic) is 31%, plugging in (electricity) is 27% and growing things (plants, animals) is 19%, but getting around (planes, trucks, ships) is 16% and keeping warm and cool (heating, air-co, fridge) only 7% of total emissions. Think of it!
- It will be tough – many obstacles on the way, but it must be done with huge technological breakthroughs.
- Need storage to deal with intermittence: batteries, pumped hydro, thermal storage, cheap hydrogen.
- Also need breakthroughs in capturing carbon and using less.
- Need people like Norman Borlaug (semi-dwarf wheat), Elon Musk, Bill Gates … you!







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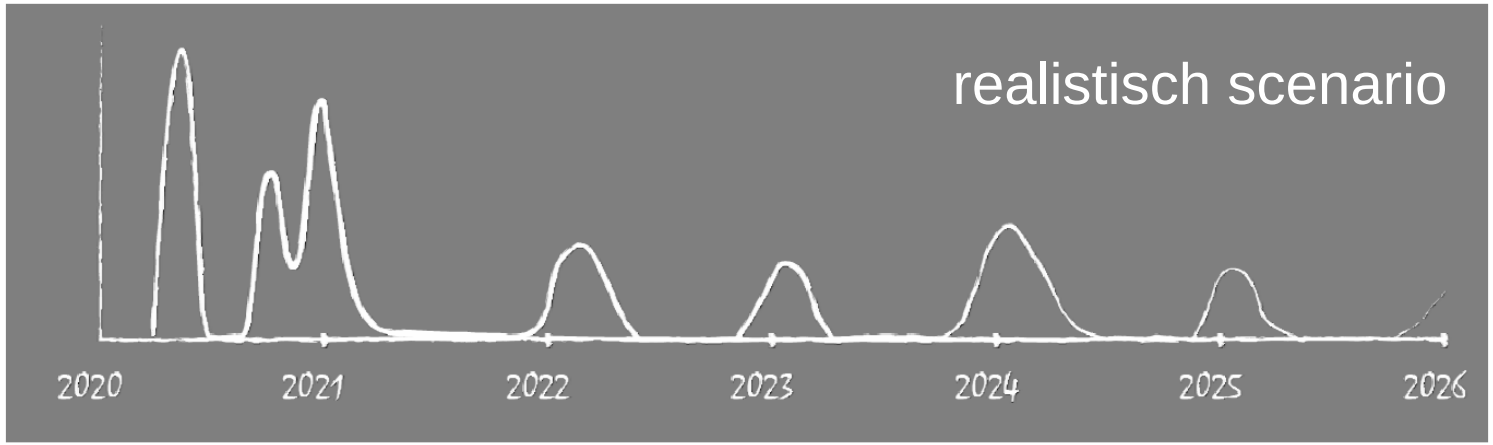
Visie op 2022: herstel met hobbels

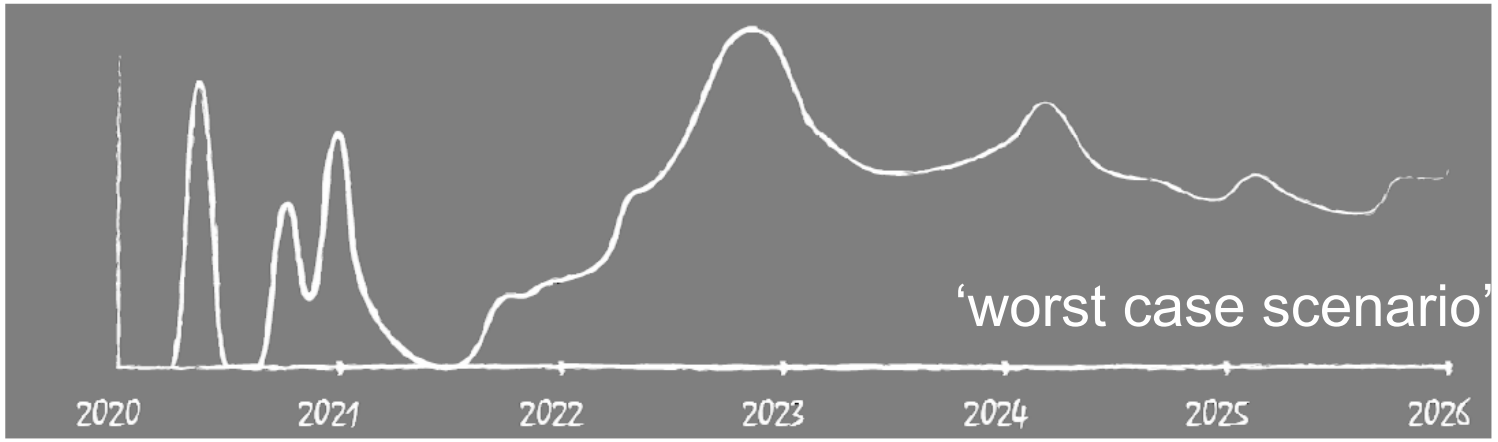
“Uncertainty is the only certainty there is”

John Allen Paulos

27 oktober 2021

Verloop COVID-19 cruciaal





Bron: WRR en KNAW

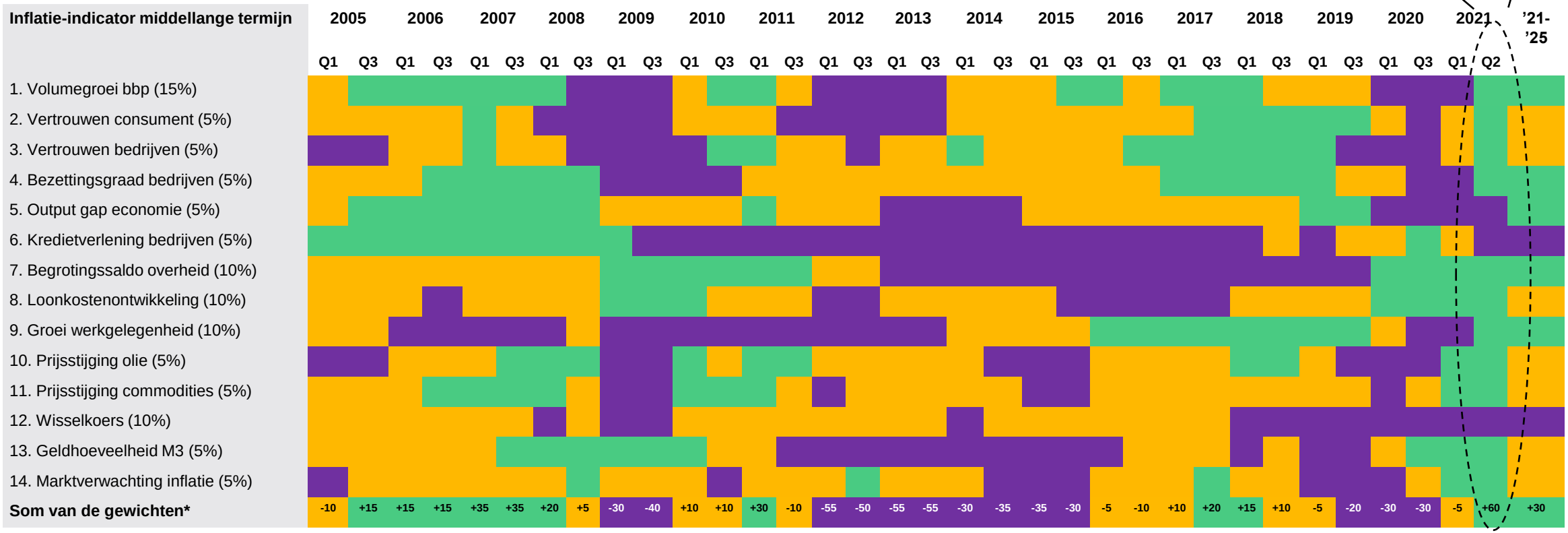
Aanbodzijde economie kwetsbaarder dan vraagzijde

Van deflatie naar reflatie (of stagflatie…?)

Inflatie in Q2!

Zwakt weer af

Ontwikkeling cyclische inflatiefactoren Eurozone van Q1 2005 t/m Q2 2021



Inflatie

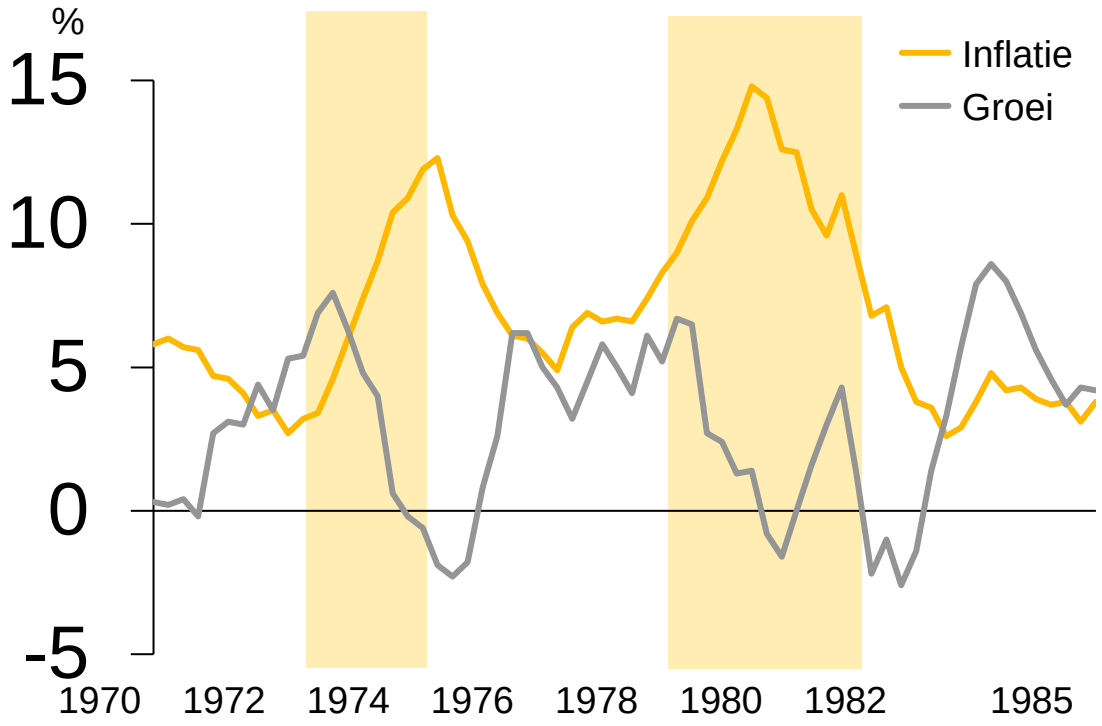
Deflatie

Pandemie: eerst deflatie

= inflatoir = neutraal = deflatoir

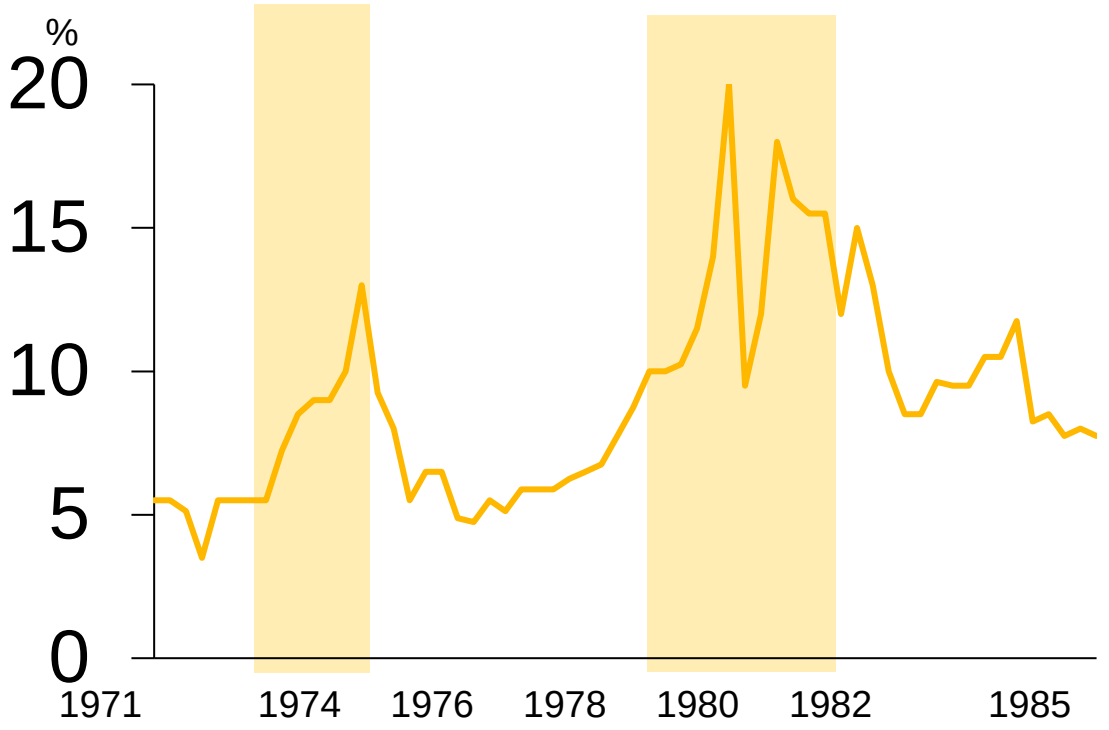
Stagflatie krijg je niet zomaar…!

Groei en inflatie in de VS 1970 - 1985



Bron: Bloomberg

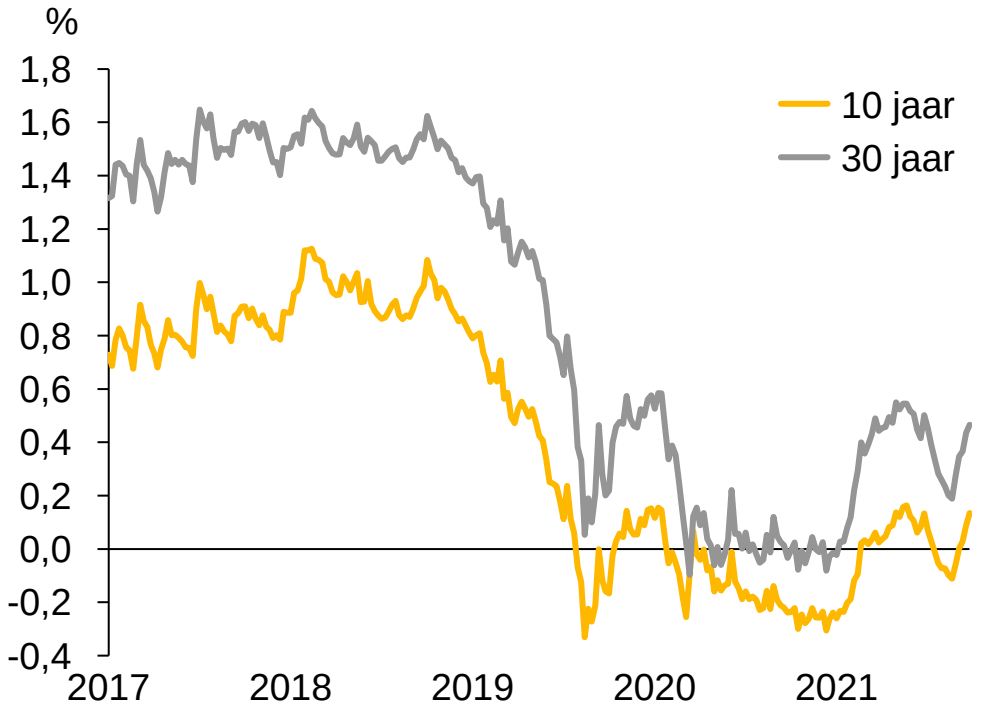
Beleidsrente FED 1970 - 1985



Bron: Bloomberg

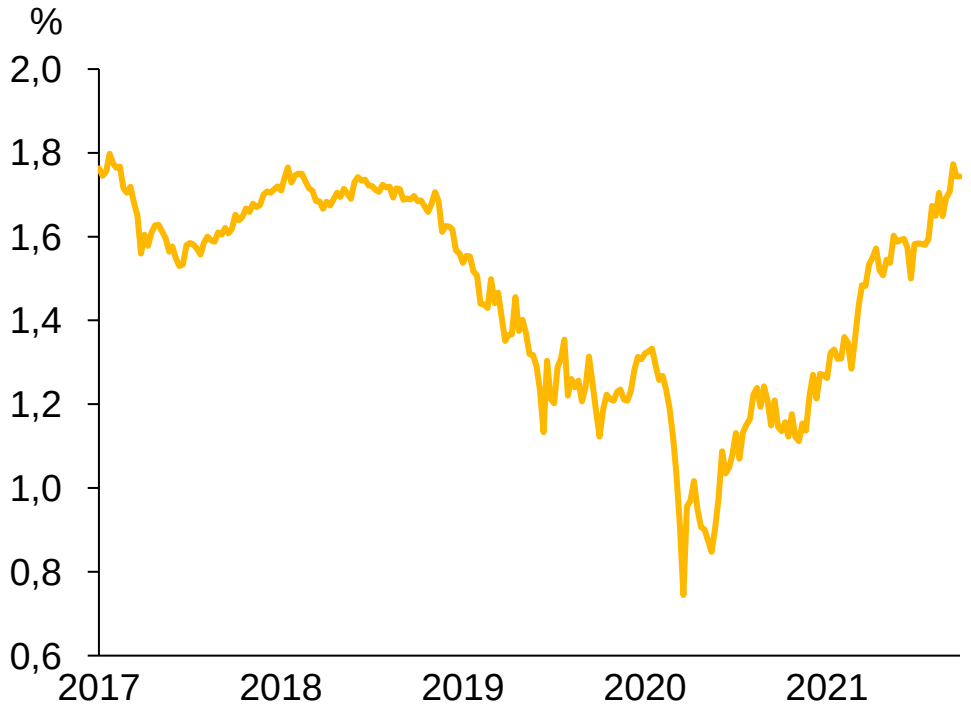
Staatsobligaties: draai in rentebeeld zet door in 2022

Euro swaprente 10 en 30 jaar 2017 - 2021



Bron: Bloomberg

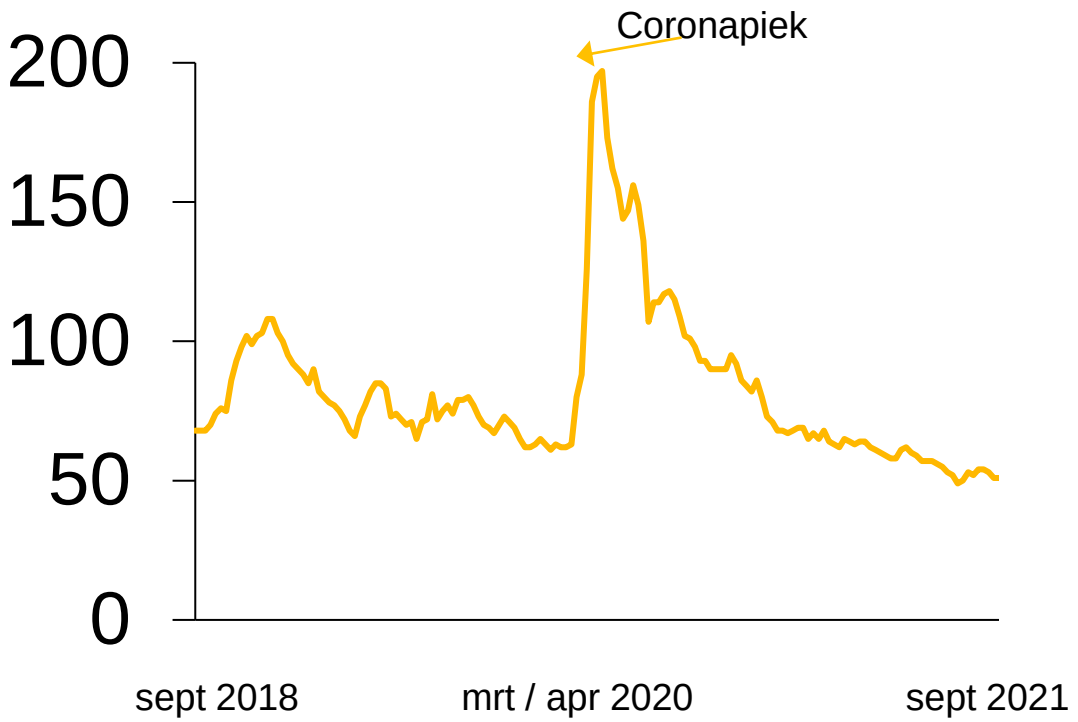
Inflatieverwachting Eurozone 5j/5j 2017 - 2021



Bron: Bloomberg

Bedrijfsobligaties: afbouw aankoopprogramma ECB nadelig

Spreads IG-bedrijfsobligaties Eurozone 2018 - 2021



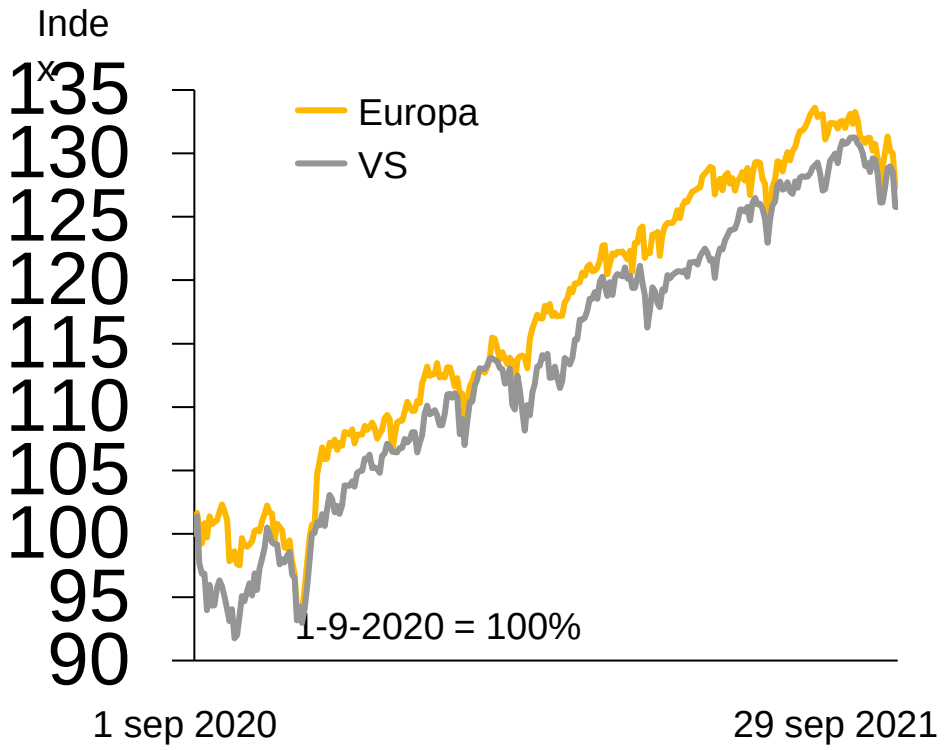
Bron: Bloomberg

?

恒大集团
EVERGRANDE GROUP

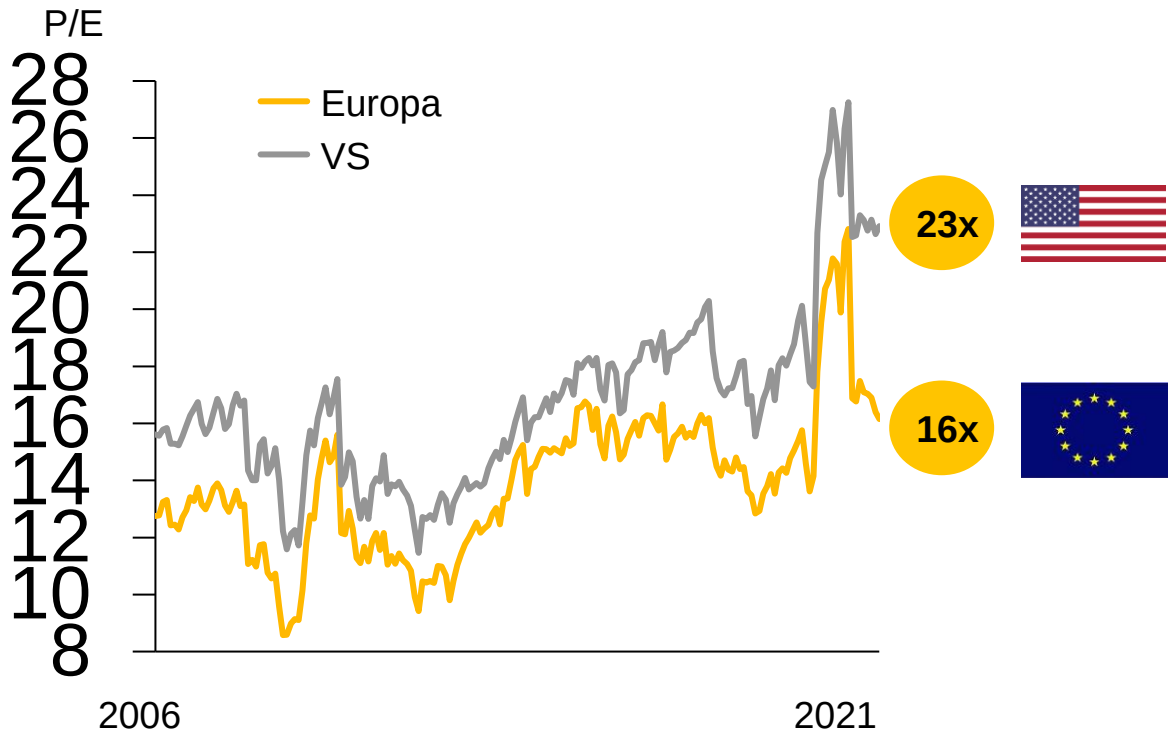
Aandelen duur, maar wel inflatiehedge

Rendement aandelen afgelopen jaar



Bron: Bloomberg

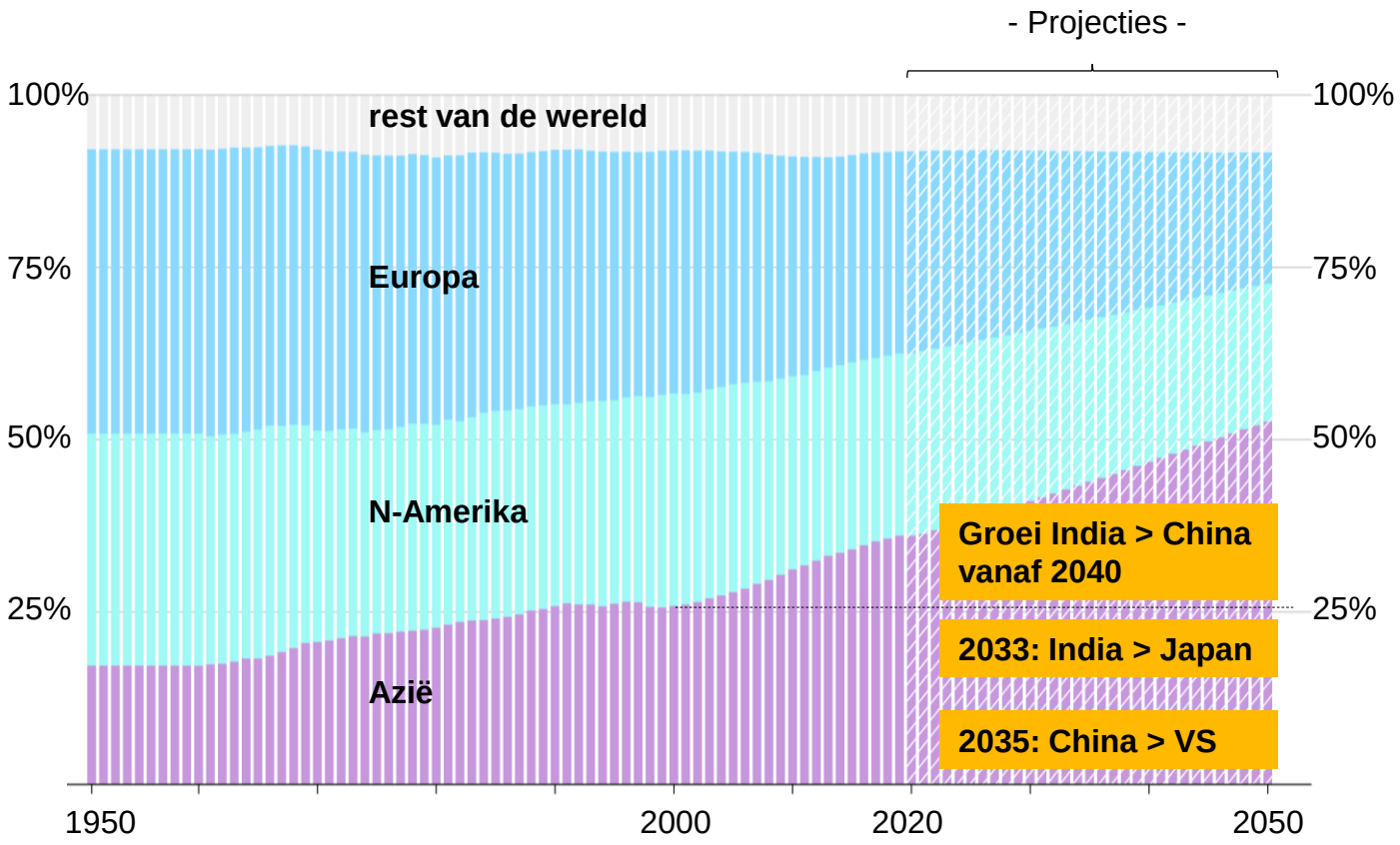
12M forward P/E ratio



Bron: Bloomberg

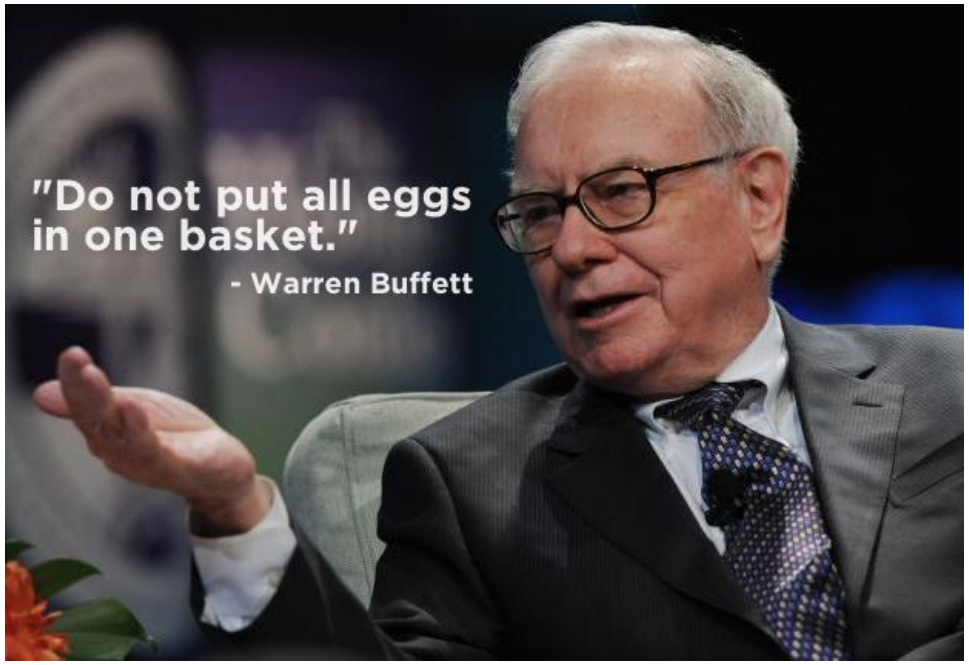
Opkomst Azië biedt kansen voor de langetermijnbelegger

Wereld bbp naar continent, in %, 1950 - 2050



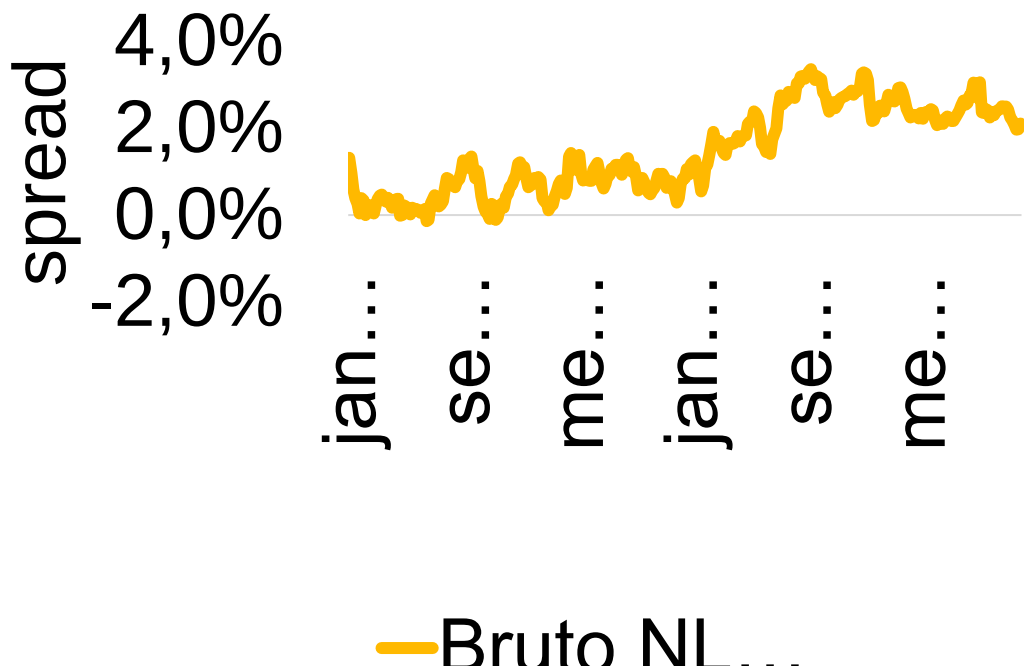
Bron: Bloomberg Economics

Beleggen in Azië biedt diversificatievoordelen



Illiquide beleggingen: hypotheken

Spread op NL hypotheken vs. NL staatsobligaties

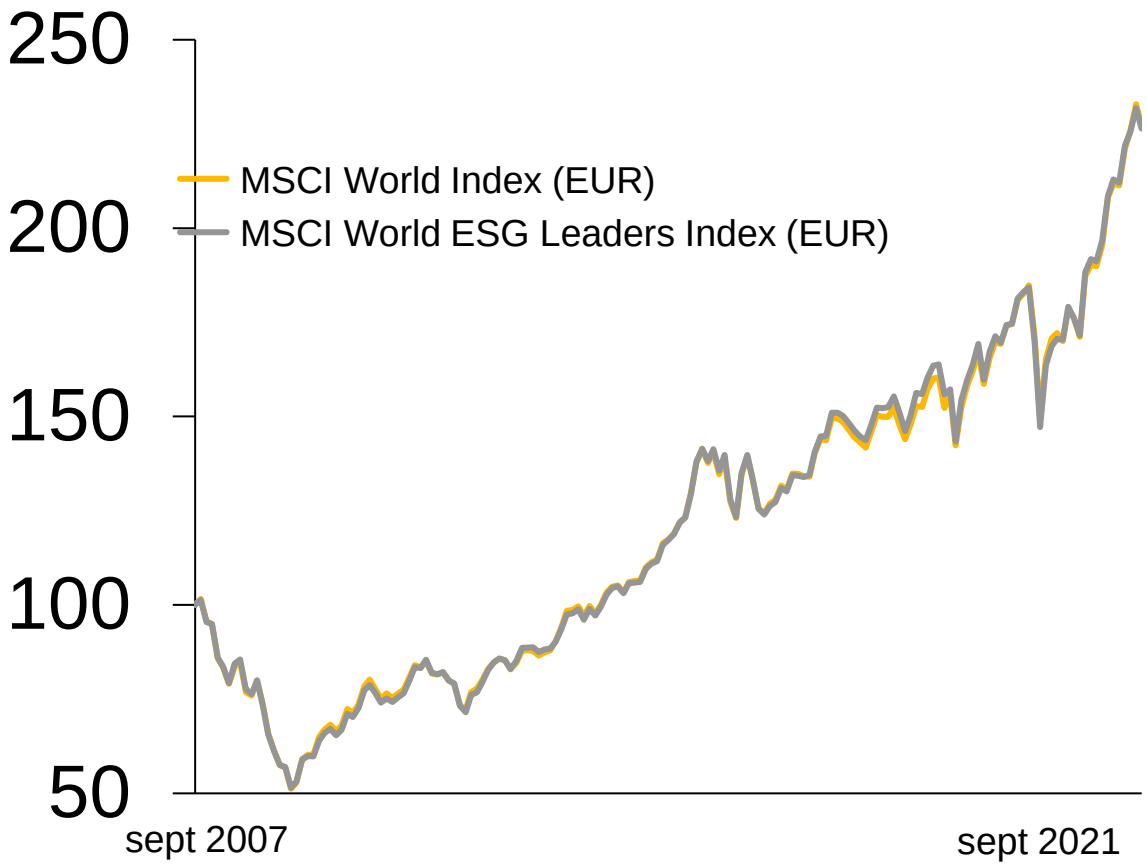


Bron: Bloomberg, DNB

Illiquide beleggingen: groene energie en vastgoed

ESG kost geen rendement

Performance van MSCI World vs MSCI World ESG



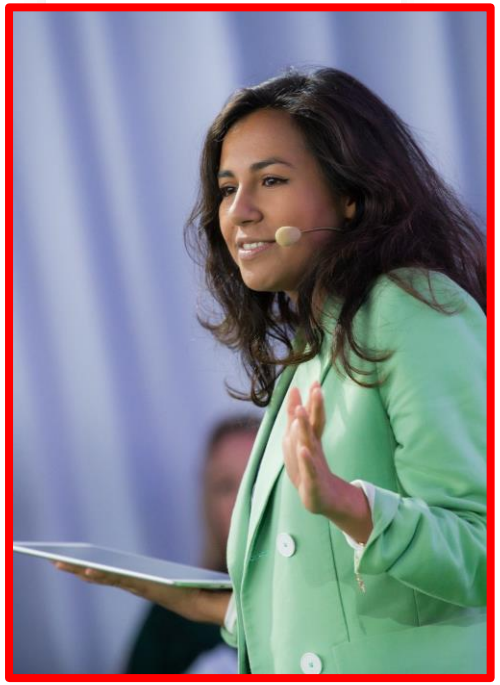
Bron: Bloomberg

2022: minder herstel, meer risico

- Covid-19 blijft grootste risico voor economisch herstel…
- …terwijl inflatiedruk langer kan aanhouden dan nu gedacht
- Dit vereist adequaat optreden van centrale banken…
- … en creëert een uitdagende omgeving voor beleggers







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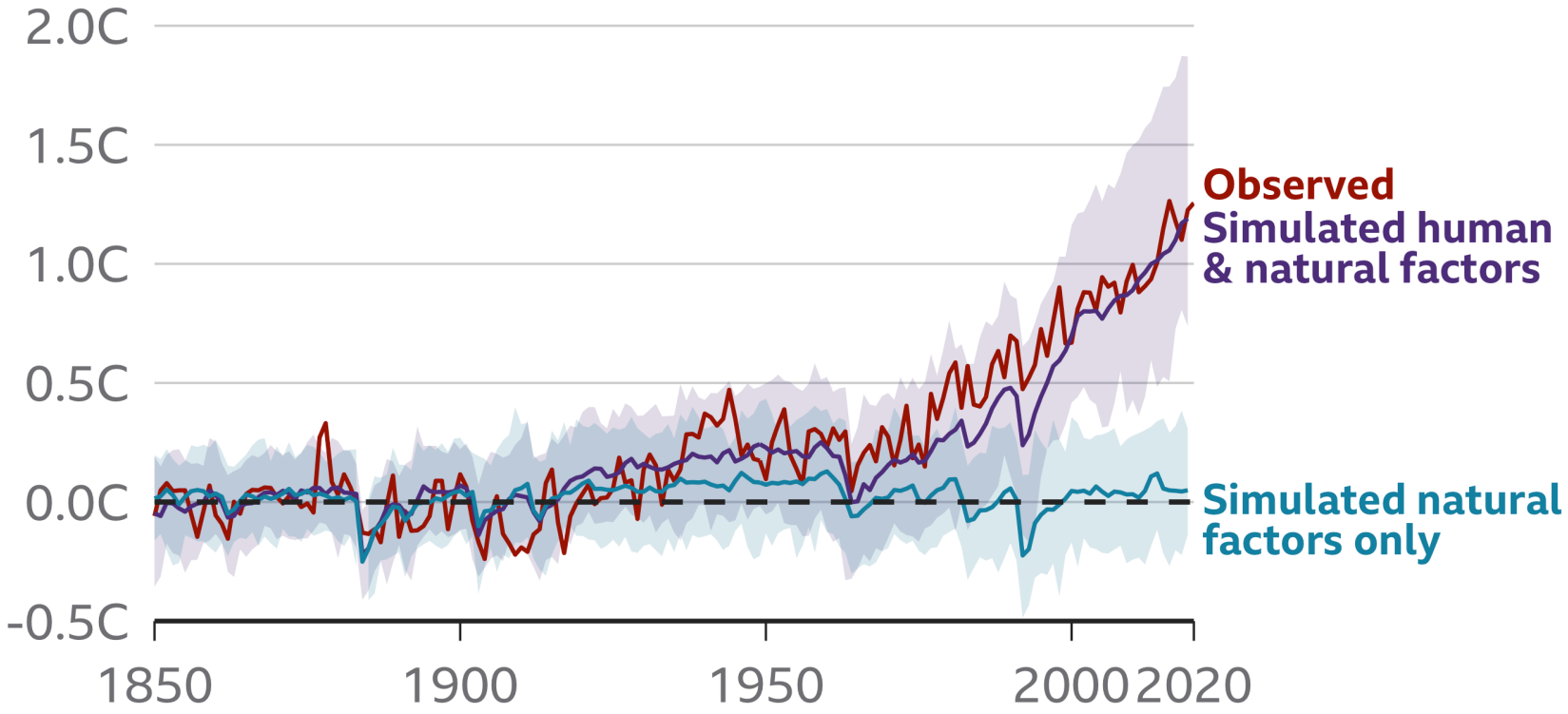
WOLLAH
GUN
TOEKOMST


© EPA / Clemens Bilan


THIS PLANET NEEDS YOU TO GIVE A SHIT
THE SEA IS RISING AND SO ARE W
We are out of Slogans !!
SOMETHING
for

Human influence has warmed the climate

Change in average global temperature relative to 1850-1900, showing observed temperatures and computer simulations



Note: Shaded areas show possible range for simulated scenarios

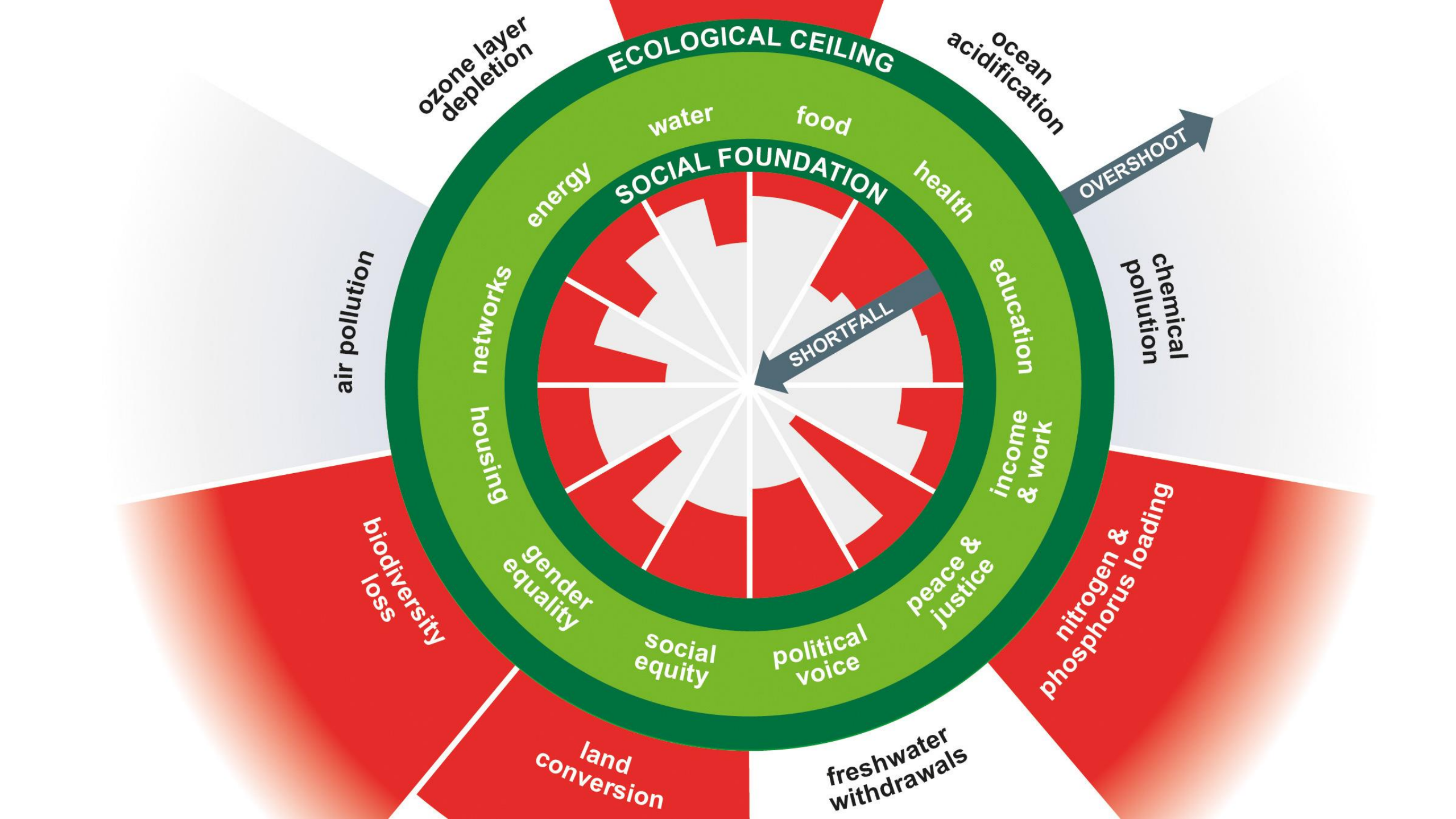
Source: IPCC, 2021: Summary for Policymakers

BBC

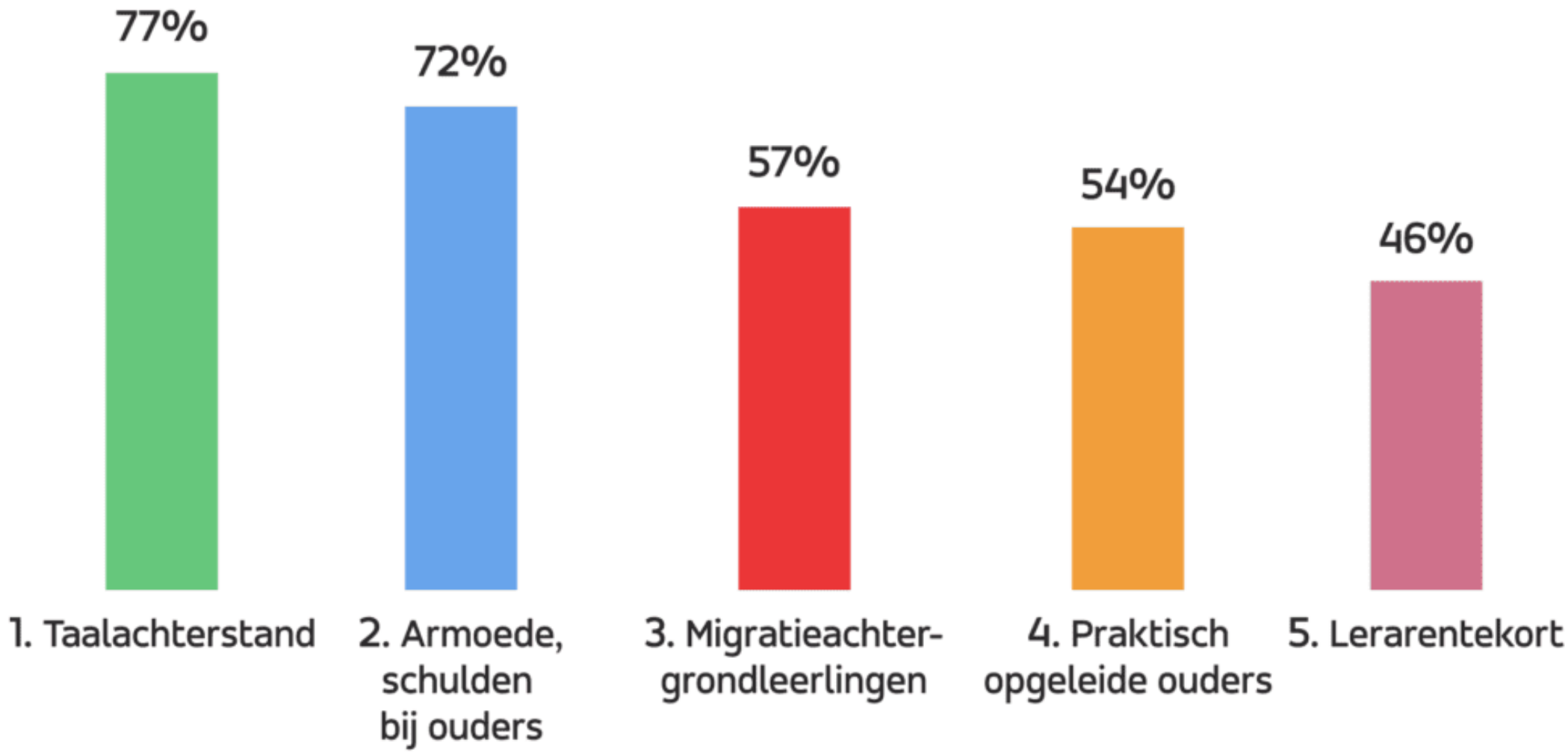
Hebben we een morele plicht naar toekomstige generaties toe?


WE RISE
KIDS WANT
CLIMATE JUSTICE

DE GOEDE VOOROUDER

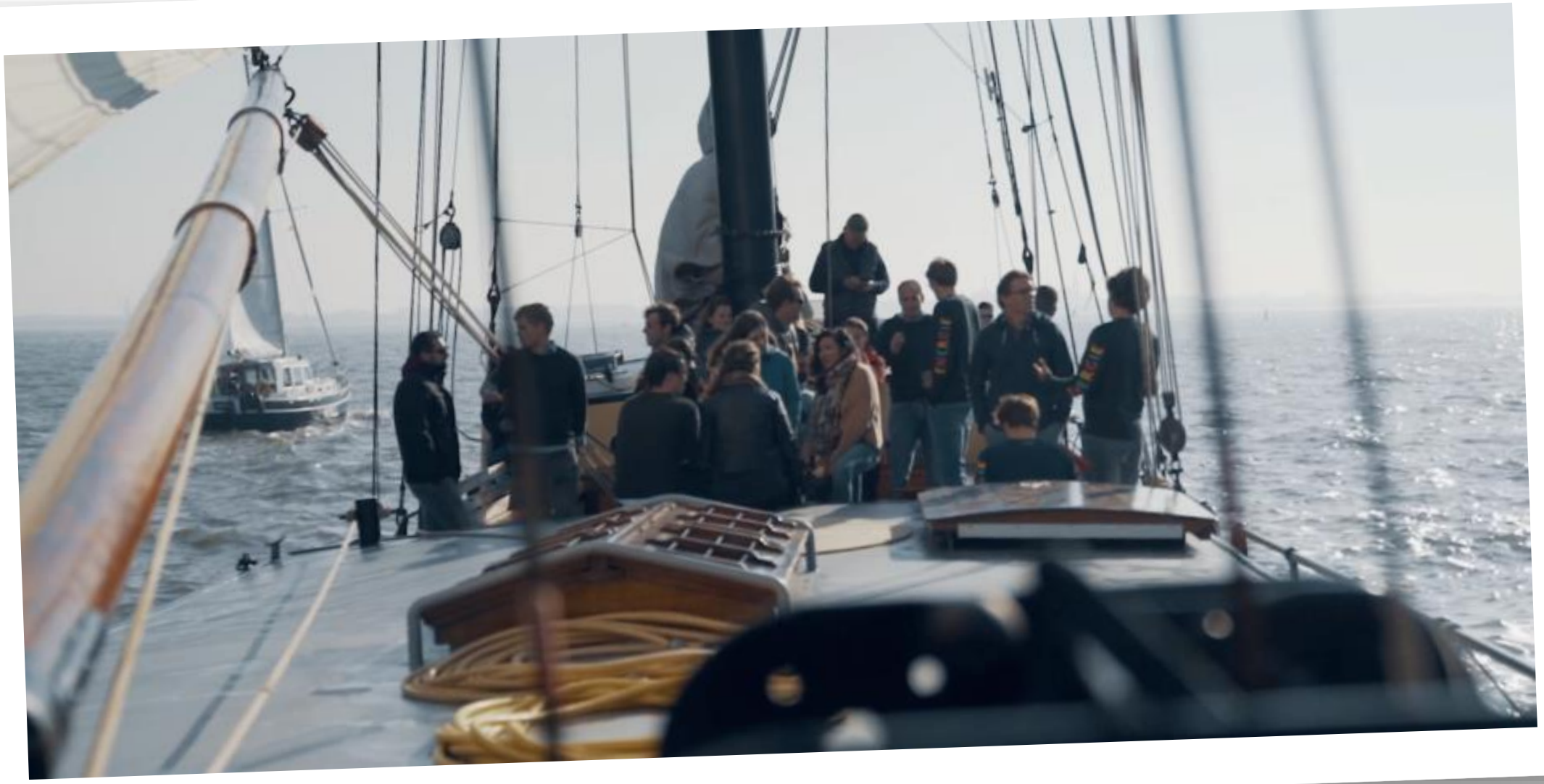

ozone layer depletion
ocean acidification
chemical pollution
nitrogen & phosphorus loading
freshwater withdrawals
land conversion
biodiversity loss
air pollution
ECOLOGICAL CEILING
SOCIAL FOUNDATION
OVERSHOOT
SHORTFALL
water
food
health
education
income & work
peace & justice
political voice
social equity
gender equality
housing
networks
energy

Top 10 oorzaken kansenongelijkheid (1-5)



Intergenerationele rechtvaardigheid checklist

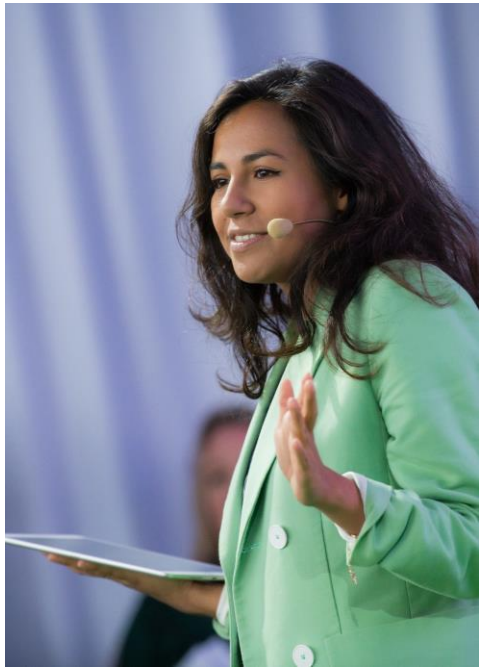
Haal expertise in huis op het gebied van intergenerational equity	Ontwikkel een generatietoets	Zet jongere generaties op bestuurlijke posities	Ontwikkel targets en beoordeling kaders voor het behouden van sociaal en natuurlijk kapitaal




ROBIN UTRECHT
FOTOGRAFIE







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