Climate change, policy, and finance

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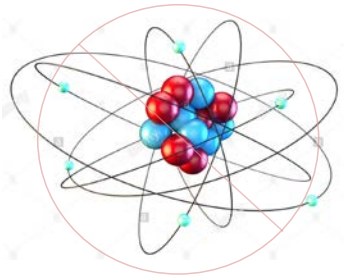
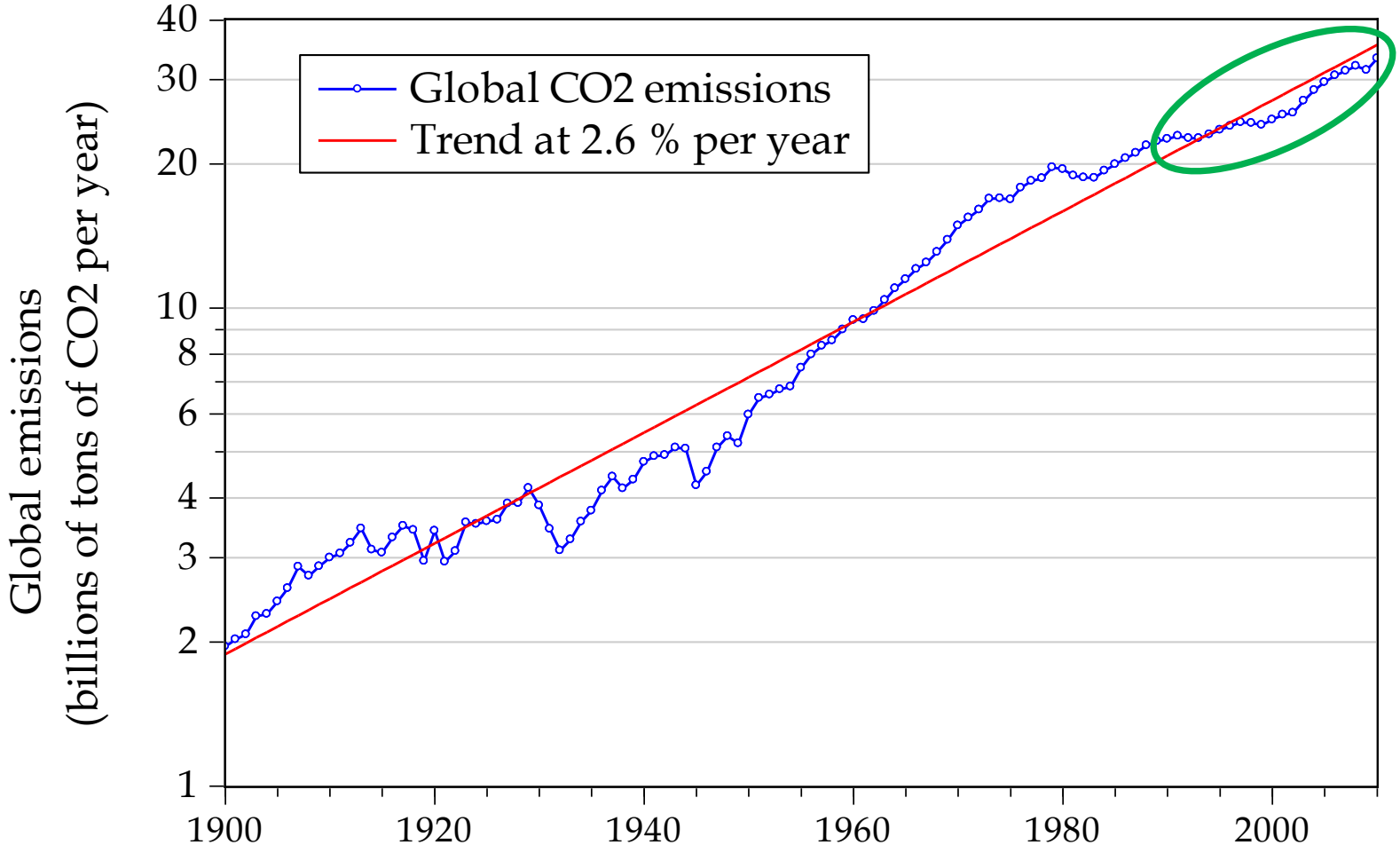


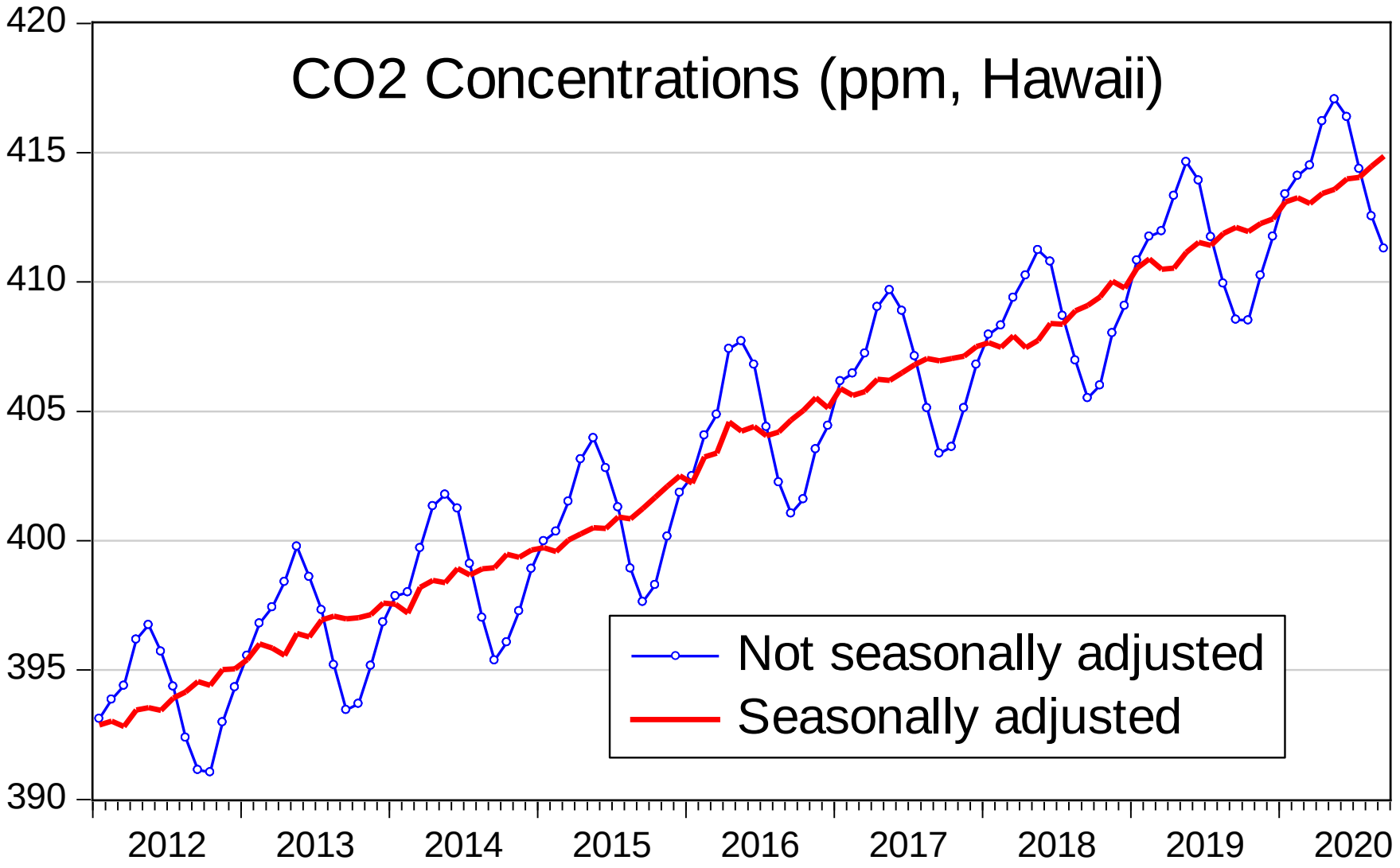
Three key issues for today

1. Very little progress in slowing emissions
2. Challenges for climate policy
3. Green finance and banking

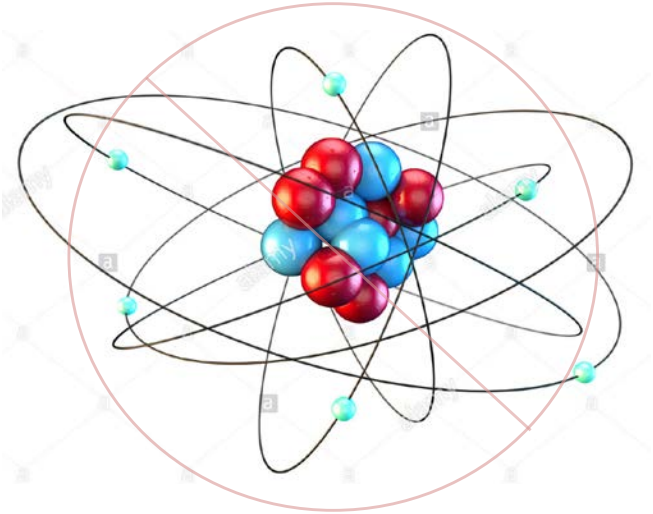
Global CO2 emissions



CO2 and the pandemic



Role of Economics in Climate Policy



Key Economic Insights (1): Inadequate investment in low-carbon technologies

- Innovation has big spillovers
- Public return on innovation many times larger than private returns
- But even worse: there is double externality for low-carbon innovations:
  - innovation externality
  - climate impacts externality
- Policy requires fixing climate externality (next slide) and special incentives for low-carbon technologies

Key Economic Insights (2): Harmonized Carbon Prices

- High price on CO_2 emissions is the key to sharp emissions reductions.
- Level of price should be harmonized to meet climate target (such as cost-benefit optimum or 2 ˚C temperature target)
- However, in reality, prices are fragmented and very low (see next slide).

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**	

Key Economic Insights (3):
The Global Free Rider Problem

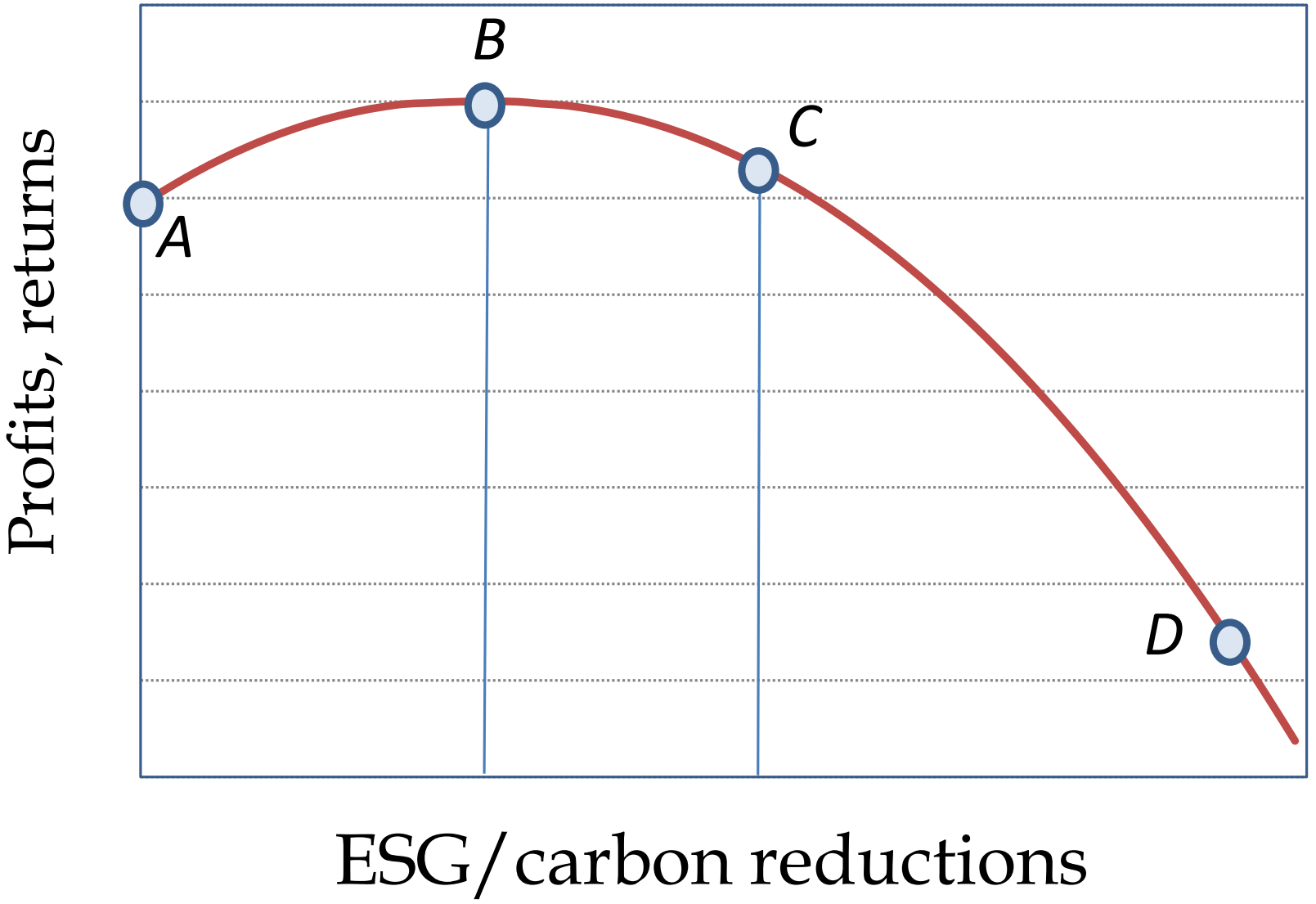
- After 30 years, international policy is at a dead end.
- Why? Climate change policy is hampered by ***the free rider problem:***
  - The agreements are voluntary.
  - So there are no penalties for (costly) non-participation
- Verdict based on actual carbon prices today and minimal emissions reductions.

A Climate Compact to Overcome Free-Riding

- Replace current structure with "club" structure.
- Club structure has privileges and obligations.
- Proposal here involves a regime with two features:
  - Target carbon price, perhaps $50 per ton CO_2
  - Penalty tariff on non-participants, say 3% penalty tariff
- Modeling at Yale suggests that this could be effective way to combat free-riding

Green Finance

Tradeoff of profits and ESG



Challenges for Financial Institutions

Companies need to incorporate climate risks into their long-term planning.

- Optimizing and reducing the carbon footprint is good corporate citizenship.
- But it is also good management.

Institutional investors should…

- Analyze and hedge climate-induced risks.
- Face squarely the tradeoff between return and ESG goals.

But governmental action is the essential component

Green Central Banking

- Is there a role for climate change in central banking? Yes and no.
- Yes, because climate change is one of the major long-term risks (along with pandemics, demography, artificial intelligence, …) and needs careful study.
- No, because it should be derivative of the dual mandates of inflation and real activity.

Summary

1. Little progress to date on climate policy.
2. Key policies are invest in low-carbon technologies and high carbon prices.
3. Combat free riding with a climate compact.
4. Green finance can support but collective action is essential.