

Finance, Money, and Climate Change

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Economic Policy

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Motivation

- “all hands on deck” are needed
- Green finance
- “greening” of monetary policy

Poll Questions

1. ESG is an effective climate policy tool?
 - a. Yes
 - b. No
2. What should be the preferred option to incentivize pollution reduction?
 - a. Pigouvian tax
 - b. Tradeable pollution permits
 - c. Green finance
3. Monetary policy should contribute to climate policy?
 - a. Yes
 - b. No

Policy Functions - à la Richard Musgrave

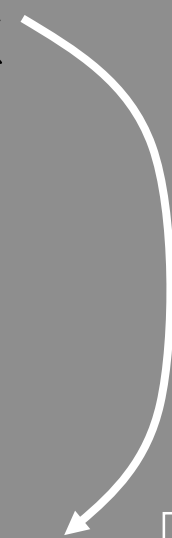
- Allocation

- Of resources/production capacity
- Risk endogenous risk

- Redistribution

- Stability (price/financial)

Central Banks



Policy Instruments: specialized or multi-purpose

- Greening” of existing policies: How to evaluate?
 1. Effectiveness in addressing climate
 2. Interference with original policy area
 - In the extreme: Should generosity of health policy depend on CO2 output?

- Consequences
 - Diminishing accountability
 - Weaken independence

Policy Horizon: The “tragedy of the horizons”

- **Climate change** decades
 - Cumulative process
 - Local shock at first (idiosyncratic)
 - No resilience due to tipping points
- **Financial stability** 8-10 years
 - Financial cycle: build-up of risk erupted during crisis
 - Volatility paradox: Resilience vs. Robustness
 - Climate interaction: extra climate (policy) risk
- **Monetary policy** 2 years
 - Cyclical
NK: Degree of price stickiness
 - Macro-fin: long-run effects possible
 - Climate interaction: impact on r^*

Mark Carney Speech

Roadmap

- Basic concepts
- Green finance
- Green monetary policy

Green finance: Sources of climate risks

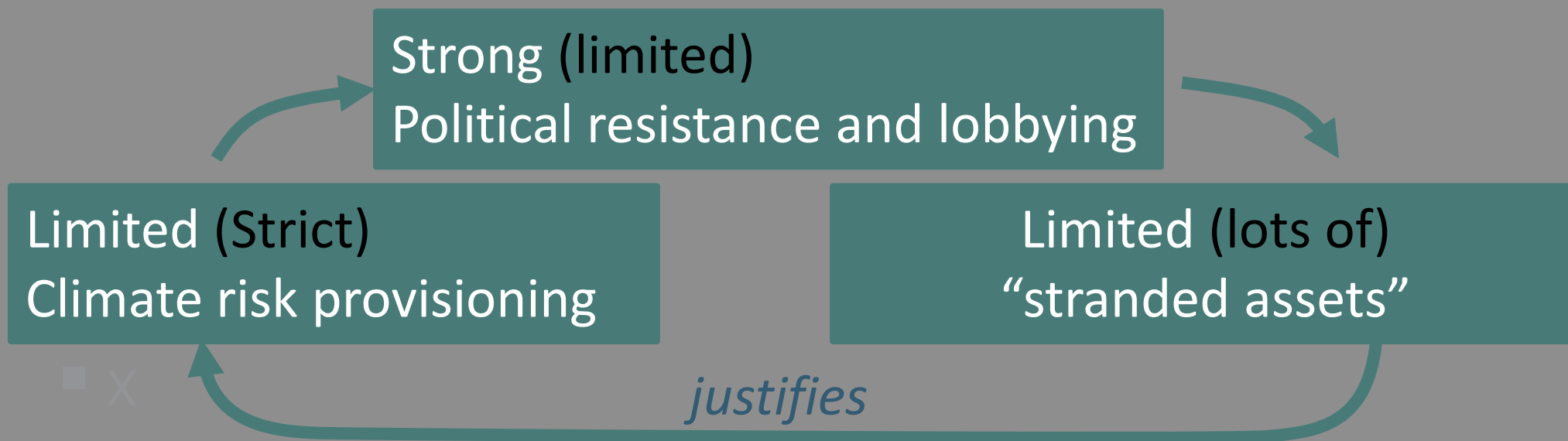
- Tax pollution vs. tax risk associated with pollution
- Types of risks - “stranded assets”
 - Directly from climate events
 - Uncertainties of existing climate policies
 - Uncertainties of future climate policies

Green finance: Sources of climate risks

- Tax pollution vs. tax risk associated with pollution
- Types of risks - “stranded assets”
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 - Uncertainties of future climate policies
- Incorporated in
 - Stress tests
 - Internal Capital Adequacy Assessment Process (ICAAP)
 - Portfolio of insurance companies, institutional investors, asset managers
 - Parallel and integrated climate and macro scenarios

Green finance: Sources of climate risks

- Tax pollution vs. tax risk associated with pollution
- Types of risks - “stranded assets”
 - Directly from climate events
 - Uncertainties of existing climate policies
 - Uncertainties of future climate policies
- Self-fulfilling prophecy – “climate dominance”



Green finance: “Uncertainty tax”

- Pigouvian tax vs. Policy uncertainty “tax”
(legislation risk premium)
 - Can be Pigouvian – steering towards green
 - No tax revenue – socially waisted in risk premia
(goes to capital investors to compensate their disutility)

Green finance: Time inconsistency - resilience

- **Fix**, clear policy path that Removes policy uncertainty
 - Pre-specified price of CO₂/carbon
 - Removing uncertainty – stimulates private investments (given low i)
 - Reduces risk premium
 - Pre-specified quantity of CO₂ emissions
 - Implemented with fixed tradable permits
- **Flexibility** – resilience (adapt, react)
 - Esp. when tipping points become apparent

Ex-ante

Time Inconsistency

Ex-post

Green finance: Input distortions

- Tax capital/funding of polluting firm
Distorting wrong adjustment **margin**
 - $Y = A F(\text{Labor}, \text{Capital}, \text{Pollution})$
 - Distort labor capital ratio
-> tilt towards less capital intensive production
 - Risky firms: distort more

Green finance: Implementation

- Implementation via bank regulation
 - Risk weights
 - Challenges - taxonomy
 - Green investments might be intrinsically riskier (esp. for new technologies)
 - Going back to 1970s, “directed credit” (lobbying, crony capitalism, ...)
 - Who decides what is green/non-green?- “greenwashing”
- ESG ratings
 - Low correlation among ESG ratings (incentives) [Rigobon et al (2020)]
 - Low correlation with actual emissions [Elmat et al. (2021)]

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Green monetary policy: Principle

- Central bank policy produces spillovers
 - Principle of Market Neutrality (asset purchases)
 - Economic: Ignores market failure
 - Political: Doesn't contribute to overall policy

Green monetary policy: Impact on r^*

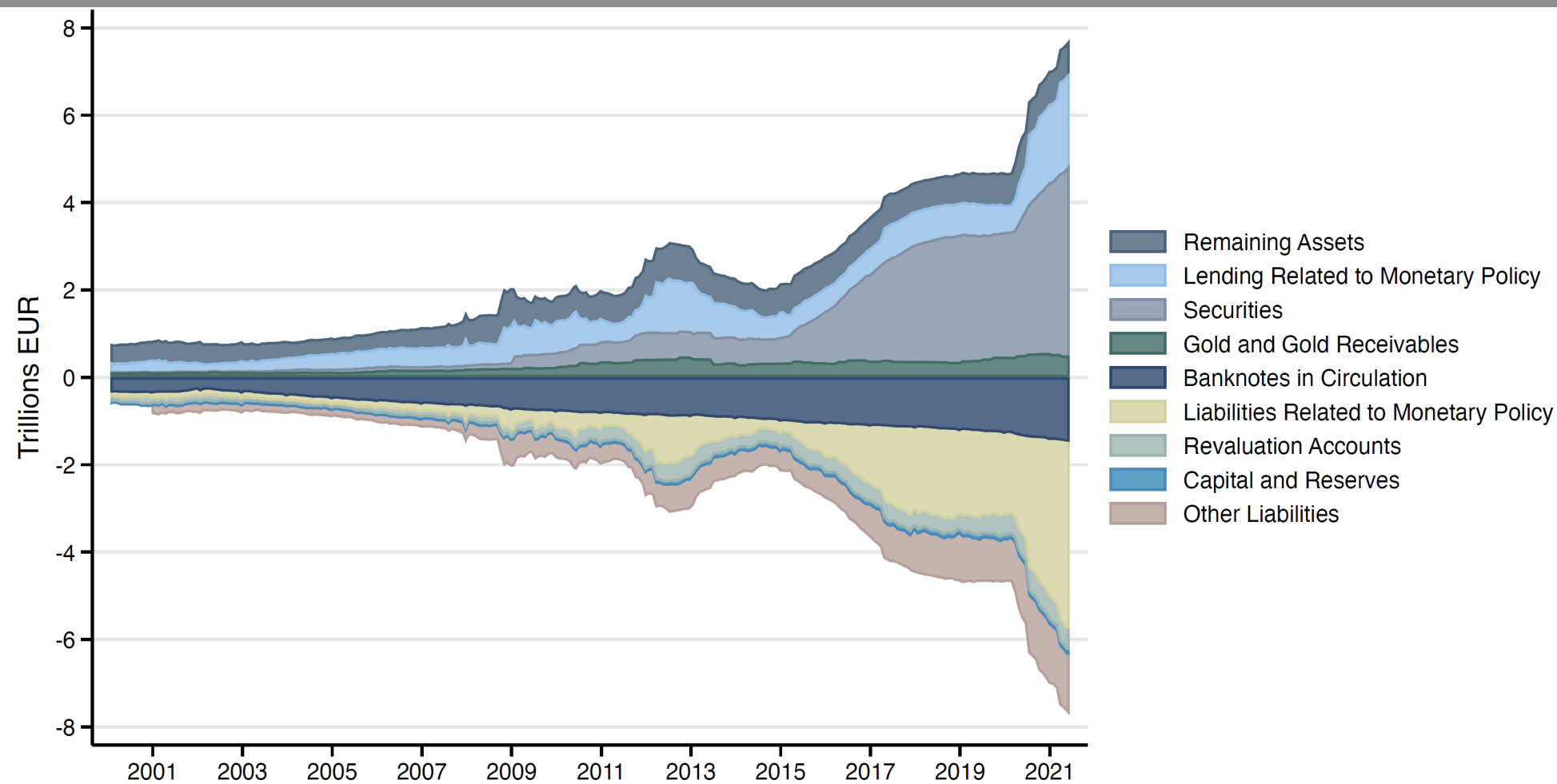
- r^* = guide whether MoPo is contractionary or expansionary
- Driven by structural forces
- MoPo space given ELB (reversal interest rate)

- r^* increases due to investment demand
- r^* decreases due to
 - Lower consumption growth
 - Increased risk (precautionary savings)

$$r^{f*} = \rho + \gamma\mu_c - \frac{\gamma}{2}(\gamma + 1)\sigma_c^2$$

Green monetary policy: Instruments

- Modulate haircuts
- Reorient asset purchases towards “green” securities (credit policy)
- Readjust existing central bank balance sheet



Green monetary policy: Central bank independence

- Not relevant for countries without CB independence (or autocracies)
 - Resource allocation and redistribution is assigned to elected bodies
- Well specified mandate for central banks
 - US Fed: dual/triple mandate
 - ECB: hierarchical (lexicographic): price stability first support overall EU objectives
- Central bank select *its* preferred secondary objective? Should an elected body select secondary objective? (why not do it directly via Pigouvian taxes?)
- Drags central banks deeper in political roam

Conclusion

- Tragedy of the horizon
- 3 Functions of policy: allocation, redistribution, stability
- Greening of instruments (multi-purpose)
- **Green finance**
 - Climate events, policy uncertainty
 - “Climate risk dominance”
 - Greenwashing, ESG rating
 - Do risk charges distort right margin?
 - Risk is a bad Pigouvian “tax”, planning certainty, time-inconsistency
- **Green Monetary Policy**
 - Increased supply shocks
 - Affects r^*
 - Threatens central bank independence?