Policies and institutions for a smooth transition

Climate macro and finance course 2021 - Lecture 3

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In need for harmonised policies

- Both climate change and the low-carbon transition could trigger macro-financial disruptions
  - Two-fold objective: minimise both physical and transition risks
- Minimise physical risks
  - How? Rapid decarbonisation
  - Large-scale investment needed
  - Where will money come from?
- Minimise transition risks
  - Smooth decarbonisation: no recession, no unemployment, no financial crises
  - How? Avoid abrupt changes (don't cause them; don't allow them)

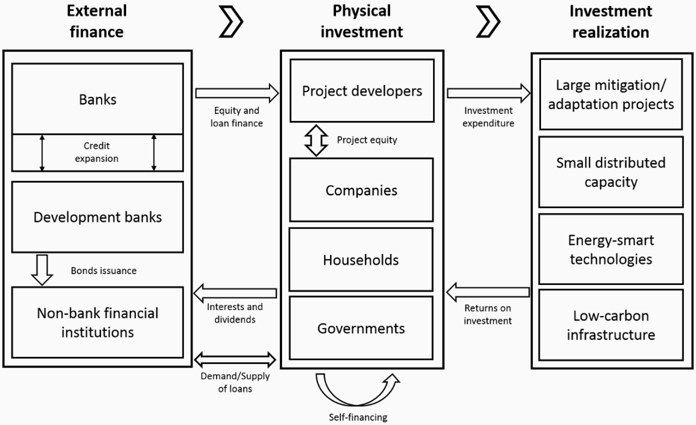
Outline for today

- Some building blocks
  - Physical/financial investments; promotional/prudential motives; political/delegated authorities
- Promotional policies: reallocate money
  - Market-based incentives (carbon pricing)
  - Government spending
  - Financial policies (?)
- Prudential policies: minimise risks
  - Informational policies (disclosure)
  - Research ($\rightarrow$ recalibration of financial policies?)
- The European case
  - The 'promotional gap' and possible future scenarios

A few building blocks

Physical and financial investments

- Physical and financial investments are performed by different actors, at different stages



Source:Campiglio et al. (2017)

Useful categories

- Motives: why is a policy being implemented?
    - *Prudential*: mitigate climate-related financial risks
    - *Promotional*: facilitate sustainable investments
- Instruments: what type of policy is implemented?
    - *Informational*: expand/improve information available
    - *Incentive-based*: modify monetary incentives
    - *Coercive*: force reallocation of credit
- Authorities: who implements the policy?
    - *Political authorities*: governments steering development
    - *Delegated authorities*: public agencies with mandates
        - Central banks; financial supervisors

Promotional policies - the ‘easy’ ones

Promotional policies by government(s) for physical investments

- Market-based instruments
  - Carbon taxes
  - Carbon markets
  - Subsidies to low-carbon technologies
  - Phase-out of fossil fuel subsidies
- Command and control regulation
- Green public spending
  - Green investment
  - Climate-related ODA
  - Public development banks
- Green nudges

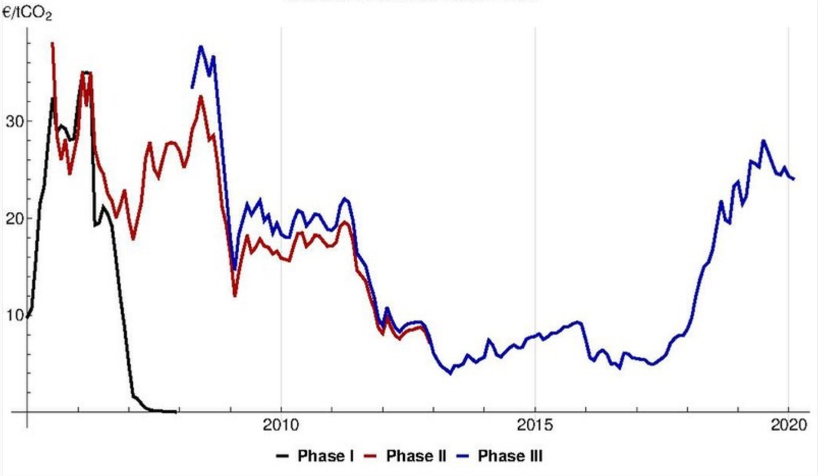
Market-based incentives

- Modify the structure of monetary incentives to make clean good and services more convenient and profitable
- Introduce a price on the carbon content of goods and services
  - Carbon taxation
  - Carbon markets
- Introduce green subsidies for the use of clean goods and the adoption of clean technologies
  - Feed-in tariffs for renewable energy
- Remove subsidies for fossil fuels
  - Fossil fuel subsidies introduced to support energy consumption, especially for low-income households
  - How to manage the transition? Social programmes

Carbon pricing

- Several benefits
  - Shift consumption/investment incentives
  - Incentivise R&D in low-carbon and carbon-saving technologies
  - Carbon revenues to be recycled ('double dividend')
- First option: introduce a tax
  - Fix a tax base and a tax rate
  - The price is set, but quantities of CO_2 may vary
  - Doesn't require new legal infrastructure
  - A clear price allows firms to plan ahead
- Second options: Create a cap-and-trade system
  - Fix an amount of emission allowances and distribute them (grandfathering and/or auction)
  - Quantities are set, but price is determined by market exchanges
  - More certain pollution reduction pathways
  - Individuals usually prefer it to a tax

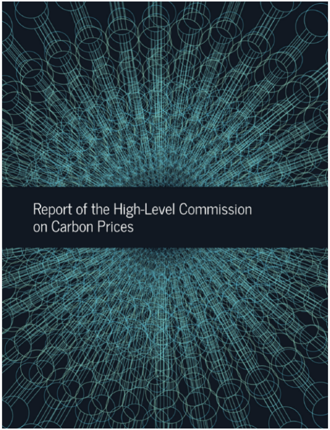
EUA future real prices



Source: Wikipedia

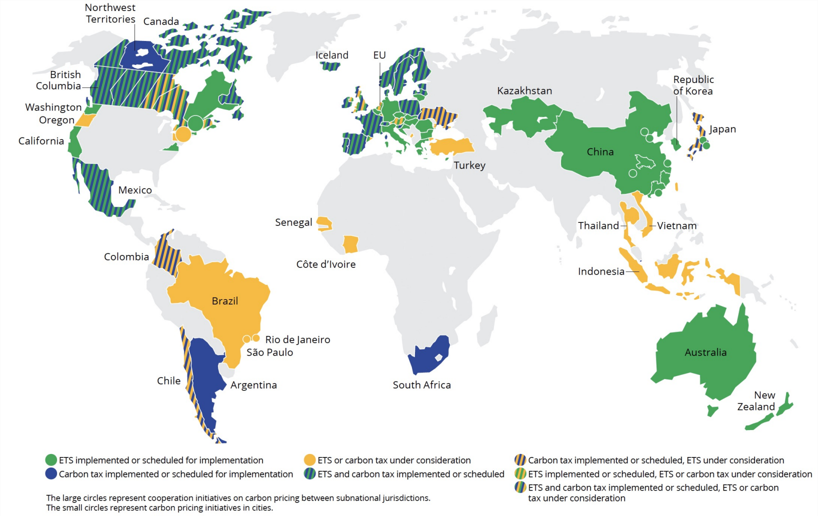
What is the 'right' carbon price?

- 2017 High-Level Commission on Carbon Prices
  - Led by Nick Stern and Joe Stiglitz
- A 2°C-compatible carbon price needs to be in the range of:
  - \$40-80/tCO_2 by 2020
  - \$50-100/tCO_2 by 2030
- Recent update:
  - Stern and Stiglitz 2021 on NBER



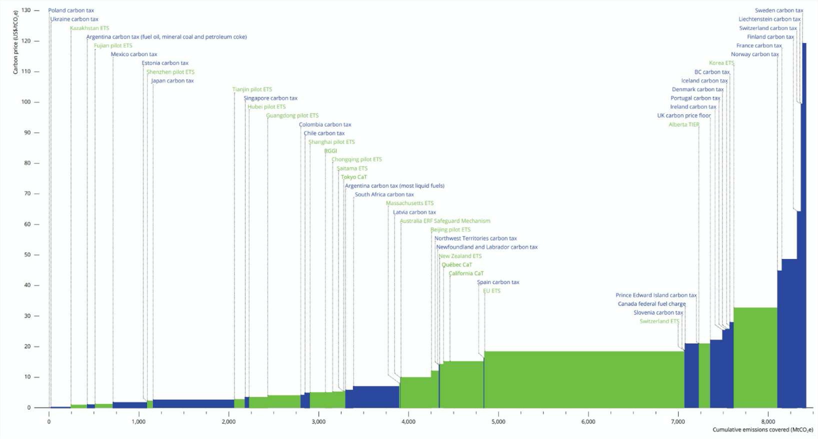
Source: High-Level Commission on Carbon Prices

Current carbon pricing initiatives



Source: World Bank (2020)

Emission coverage and prices: disappointing so far



Source: World Bank (2020)

Green public spending

- Some investments are just too large and/or unprofitable
  - Direct intervention by public actors needed
- Green public investment
  - Public intervention needed to create infrastructure (e.g. high-speed railway, smart electricity grids)
  - Problem: public debt and austerity narrative
  - Change of pace with European Green Deal?
- Green public procurement
  - Public procurement represents around 15-30% of GDP
  - Secure source of demand (but is supply available?)
- Climate-related ODA
  - Commitment: 100 US$bn per year by 2020 from OECD to developing regions Multilateral climate funds
  - Pledges vs disbursements

Public development banks

- Financial institutions with a strong public component with the goal of supporting economic development
  - Multilateral development banks:World Bank group, EIB, EBRD, ADB, IaDB etc.
  - National development banks: KfW, BNDES, CDP, and others
- Development banks at the forefront of international climate financing
  - And instrumental in the diffusion of green bonds
- Development banks have two main sources of finance
  - Public budgets
  - Private finance raised on capital markets
- However, development banks' action is limited
  - Not real banks
  - Constrained by government capital commitment and leverage ratios

Promotional financial policies?

How do we steer financial investments?

- It can be argued that carbon price will also bring along financial investments
  - However: several issues with carbon pricing
- It may never be introduced
  - Distributional issues, regressive (?)
  - Triggers popular reactions (see gilets jaunes)
- Even when introduced, it may not stay
  - See Tony Abbot and the Australian carbon tax
- Even when stable, the price may not be high enough
  - See European Union ETS
  - Lobbying interventions when setting a tax
- Additional financial market failures
  - Banks and financial investors may not want to lend even in presence of the 'right' prices
  - See European banking system after GFC

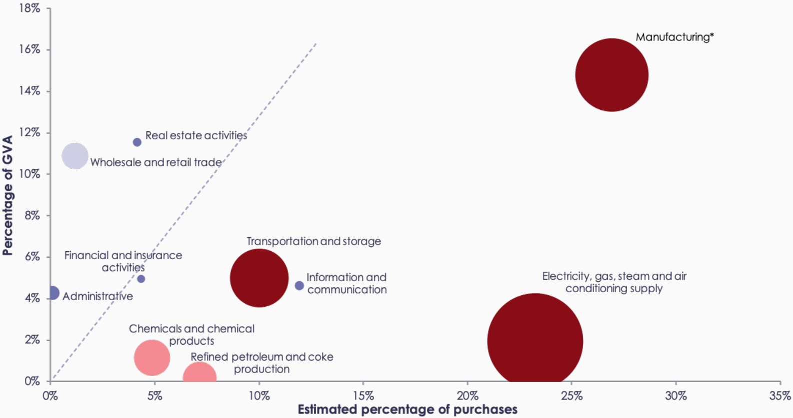
Direct green financial policies

- Recalibrate prudential regulations so to give incentives to low-carbon investments:
  - Similar in spirit to a carbon price
  - Capital, liquidity and reserve requirements
  - E.g. Banque de Liban differentiated reserve ratios
- Use monetary policy tools to offer incentives:
  - Bank of Japan refinancing conditions depending on greenness
  - Chinese MPA framework by PBoC: greener banks pay lower interest rates on reserves
- Force banks to give credit:
  - Credit quotas set by Reserve Bank of India and Bank of Bangladesh

Green quantitative easing

- Quantitative easing (QE):
  - Programmes of purchase of financial assets by central banks (ECB, Fed, BoE, BoJ..)
  - Necessary when policy interest rates reach zero
  - Mainly sovereign bonds, but also corporate bonds, ABS, ..
  - Driving criteria: market neutrality
- Green quantitative easing idea:
  - Purchase green assets (e.g. ‘green bonds’) to ensure liquidity to green activities and lower their financing costs
  - Might help ease current high-carbon bias of QE programmes

A high-carbon bias in the ECB QE programme?



Size of bubble indicates relative contribution to emissions in the Eurozone. Source: Matikainen et al. (2017)

Can these be implemented?

- It depends on the chosen institutional setting for public-private financial relations
- China and many other emerging economies (+ Japan)
  - Strong presence of the state in financial markets
  - Window guidance, manager mobility, reporting, market incentives, sectoral quotas
- Europe and other Western high-income countries
  - State should stay out of the economy, and especially financial markets
  - Market discipline: market actors will price assets according to their risks, and allocate credit accordingly (efficiency!)
  - In these jurisdictions, the state needs to be allocation-neutral

Prudential policies

Prudential policies

- Prudential policies are meant to mitigate financial risks
  - E.g. Capital/liquidity requirements and other Basel III rules
- Micro vs macro-prudential
  - Micropru focuses on financial institutions, protecting customers
  - Macropru focuses on financial systems as a whole
- The allocation outcome doesn't really matter (in principle)
  - What matters is monitoring and mitigating risk, wherever it come from (even if from green sectors)
- Both physical impacts and transition dynamics are a source of financial risk!
  - However: unclear to what extent, how, where, etc.

Policy approach I: clarify concepts and rules

- Investors need a commonly agreed interpretation of categories and rule
  - What does it mean to be ‘green’?
  - Avoid greenwashing
- Development of a ‘taxonomy’ of sustainable activities
  - See: EU taxonomy for sustainable activities
- Development of green bond standards
  - See: EU green bond standard
- Development of climate-related benchmarks
  - See: EU climate benchmarks

Policy approach II: risk assessment

- Unclear how to calculate exposure to climate/transition risks
  - Exposure of business operations (firms)
  - Exposure of financial assets (financial institutions)
  - Exposure of financial systems (financial supervisors)
- First, more data needed
- Second, methodologies needed
  - Financial institutions very active in developing new methods
  - Development of climate-related stress testing methodologies by central banks

Policy approach III: risk disclosure

- Once assessed, risk exposure needs to be disclosed for market discipline (and regulation) to work
- Examples
  - See: Task Force for Climate-Related Financial Disclosures (TCFD)
  - See: EU Disclosure Regulation
  - See French Energy Transition Law (Art. 173)

The European ‘promotional gap’

A green supporting factor

- EU Action plan (link)
  - Action 8: Incorporating sustainability in prudential requirements
  - '.. explore the feasibility of ... potential calibration of capital requirements of banks'
  - '.. where this is justified from a risk perspective..'
- EU Parliament proposal (link)
  - Adjust risk weights by a factor of 0.7612 (or 0.85 for exposures larger than 1.5mn) for green assets

Who controls the purpose of banking and financial regulation?

Valdis Dombrovskis (EC) 2017

"*To incentivise lending, we are looking positively at the European Parliament's proposal to amend capital charges for banks to boost green investments and loans by introducing a so-called green supporting factor*"

"*Any capital relief for green assets must be based on clear evidence that they are less risky than non-green assets.*"

Andrea Enria (EBA) 2019

Research questions

- What explains this institutional behaviour?
    - Other jurisdictions behave differently
    - We focus on:
        - Degree of public control on private markets
        - Strength of delegated authorities
    - $\rightarrow$ European green financial policies gridlock
- Where could these settings lead?
    - Discuss likelihood and desirability of future scenarios of institutional evolution
        - Green financial technocracy
        - Repoliticisation of central banks
        - Coordination

What do we observe?

- Higher-income western regions (EU, UK, US):
  - Disclosure, taxonomy, stress testing
    - Rationale: give info to markets; markets will price
    - Supported by PAs for promotional reasons
    - Supported by DAs for prudential reasons
- Lower-income emerging regions (China, India, + Japan):
  - Similar focus on informational policies
  - Plus incentive and coercive policies, mainly targeting banks
    - i.e. ‘Prudential’ policies used for non-prudential purposes

What explains difference in behaviours?

- Degree of public control on private financial markets
    - Europe et al.: market discipline
    - China et al.: market statism
- Strength of delegation
    - Europe et al.: more independent agencies
        - Clear delegations with limited mandates (CBI)
        - Concurrent relative weakness of PAs
    - China et al.: more dependent agencies
        - DA policies support PA development objectives

The European green finance gridlock

		Delegated authorities	
		Fits with objectives	**Does not fit with objectives**
Political authorities	**Fits with objectives**	Disclosure standards; taxonomies; benchmarks; stress-testing; green bond standards	Green-supporting factor; other green prudential policies; green monetary policies
	Does not fit with objectives	Dirty-penalizing factor; sectoral leverage ceilings; credit controls	

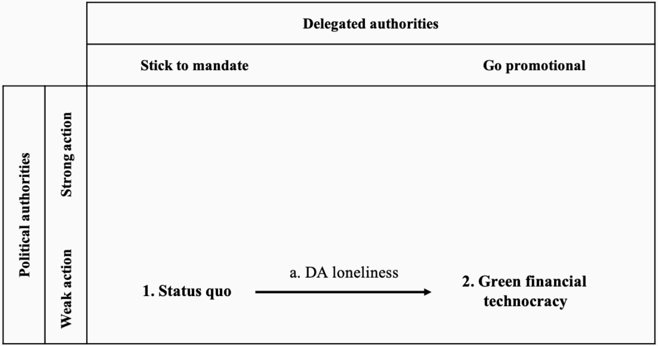
- Only policies that fall into the the NW quadrant are admissible
- A European ‘promotional gap’
  - Finance is not pushed in direction of green investments strongly enough by anyone

The status quo

		Delegated authorities	
		Stick to mandate	Go promotional
Political authorities	Strong action		
	Weak action	1. Status quo	

- Status quo:
  - PAs taking weak actions
  - DAs sticking to prudential reasons and market neutrality
- Ultimately unstable due to environmental constraints and limited effectiveness of informational policies:
  - Someone needs to go promotional

Lonely DAs



- Government takes no action:
  - DAs forced to go promotional (output legitimacy concerns)
  - ECB/BoE moving there? (see recent Lagarde/Bailey speeches)
- Outcomes:
  - Technocracy (a green financial Leviathan)
  - Triggers PA reaction

A promotional future?

- ECB seems to be moving towards promotional motives
- Isabel Schnabel (ECB Executive Board)
  - 'We could also consider reassessing the benchmark allocation of our private asset purchase programmes. In the presence of market failures, market neutrality may not be the appropriate benchmark for a central bank when the market by itself is not achieving efficient outcomes.'
- Unclear where this will lead

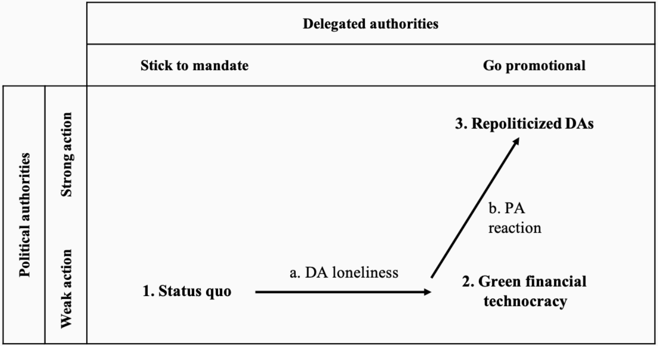
Christine Lagarde expected to make ECB a climate change pioneer

Economists surveyed by FT anticipate reduction in purchases of bonds issued by big carbon emitters

Christine Lagarde, president of the European Central Bank, has signalled she is in favour of changing its remit to address climate change © Thomas Lohnes/Getty Images

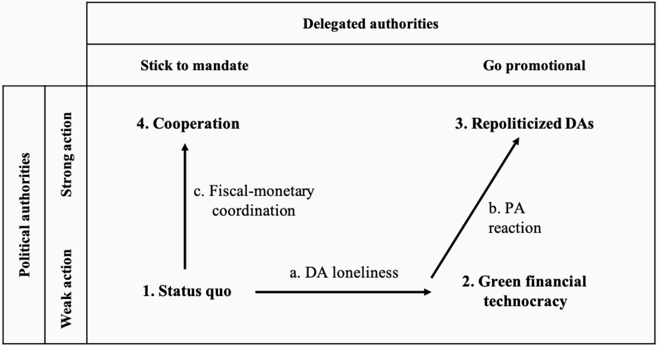
Financial Times (3 Jan 2021)

Loss of delegation - A green central bank



- Promotional DAs clash with PA sphere of influence
  - In the clash, PAs will always end up winning
- Reappropriation of policy function by PAs
  - A green central banking with less independence
  - Similar to current frameworks in China et al.

Cooperation: two flavours



- Governments can take action, leaving DAs to remain within their mandate boundaries
    - Implement strong fiscal policy leaving DAs to their mandates
    - Delegate climate-related objectives (a ‘carbon central bank’)

Conclusions

Conclusions

- One policy won't suffice: harmonised approach needed
- Promotional government policies
  - Carbon pricing + direct spending
  - Implementation issues
- Financial policies
  - Two possible motives: prudential vs promotional
  - Europe et al: only prudential motives allowed by institutional settings
  - China et al: both prudential and promotional motives are allowed
- Where could this lead us?
  - Need to find a way to combine effective climate action with institutional legitimacy
  - Idea of a carbon central bank potentially promising

Assessment for 1st part of course

- Write an essay
  - No word limit
  - Express opinions and justify them using concepts/literature/data; be aware of complexity
  - Try to go deeper in the than what we did together
- Options:
  - Identify and discuss a specific transmission channel through which a climate-related (physical or transition) risk driver might affect economic/financial stability
  - Discuss a particularly promising (in terms of effectiveness and feasibility) policy to reallocate financial resources away from high-carbon activities
- Deadline:
  - Sunday 28 February at midnight
  - Send a pdf file to emanuele.campiglio@unibo.it