Climate Finance and Carbon Money: Indispensable Components of the Low-Carbon Transition

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Paris Agreement 2015: Birth of Climate Finance

Paris Agreement 2015 => transition to low-carbon economy (carbon neutrality by 2060), needing estimated $6.3 trillion per year over next fifteen years.

Make “financial flows consistent with pathway” to low-carbon economy (Article 2) => launch of climate finance.

Green Climate Fund (GFC): $100bn. p.a.

Public development banks -> infrastructure funding.

Rest from private sources => banks, ESG funds, “green” bonds.

Climate Finance <-> Carbon Money

- Self-expansion of finance driven by credit-money channels fueling specific segments of finance -> Eurocurrencies, money-market funds, repos, broker loans, asset-backed commercial paper, cryptocurrencies, et cetera.
- This will also have to be case for climate finance => needs to be grounded in its own specific money creation process, namely carbon money.
- First signs of embryonic carbon-money forms:

a) International emission-reduction certificates under Kyoto Protocol allowing rich countries to finance mitigation projects in poorer countries via transfer of carbon offsets (JI's ERU, CDM's CER units);

b) Paris Agreement's ITMO as potentially much bigger transfer mechanism.

c) Carbon Offsets: private trading of carbon credits used as offsets.

d) Digital carbon tokens: e.g. Veridium's natural-capital marketplace.

Objectives/Justifications of Carbon Money

- Carbon money must address following low-carbon transition aspects:

  a) funding of mitigation projects and adaptation projects;

  b) depreciation and liquidation of "stranded" high-carbon assets;

  c) business models turning social-cost reductions/avoidance (in the form of emissions reductions) into private-revenue flows;

  d) rewards for economic actors keeping activity impact below assigned carbon budget.

- Carbon money will have to follow unique ex-ante evaluation and ex-post validation procedures corresponding to the specific characteristics of climate finance in terms or scale, time horizon, risks, et cetera.

Key Challenges for Climate Finance

Three major issues to resolve:

a) Asymmetric nature of climate-change mitigation and adaptation => need for large transfers of financial and technological resources from rich nations to poorer nations.

b) Unique investment profile: need for huge sums to be invested in projects over very long time horizons, carrying considerable (and unprecedented) risks, to be evaluated at low discount rate.

c) Imposing sufficiently high carbon price => cap-and-trade mechanism is flawed; politically difficult carbon tax must be part of broader tax reform.

Two Shadow Prices for Greenhouse Gases (GHG)

- Internalize social costs of GHG emissions by making polluters pay and monetize GHG emission cuts as social benefit worth rewarding => each objective has its own shadow price of GHG ("carbon price"):

1) Polluters pay social-cost-of-carbon (SCC) price. This SCC is based on estimated damage from climate change, per ton of GHG. It is therefore rising over time, for instance from €50/ton in 2022 to €120/ton in 2032.

2) Mitigation investments aimed at reducing GHG emissions, referred to as "carbon assets," should be evaluated on the basis of their average marginal abatement cost (MAC) estimates. This MAC is based on the additional cost of reducing a ton of GHG, thus presumed to be declining over time.

Monetizing Carbon Certificates (CC)

- International Mitigation Project Initiator (IMPI) evaluates mitigation investment projects on global scale to determine their emission-reduction potential => issues corresponding amount of CC per project, valued at MAC price per ton which IMPI sets recurrently.
- Government guarantee of CC via public insurance fund makes them work like true money, akin to IMF's Special Drawing Rights.
- IMPI distributes CC to respective central banks for whom they serve as addition to reserves (i.e. liabilities) transferred to banks and specialized climate-finance lenders. The CC top up the loans made to fund the IMPI-approved mitigation projects ("carbon assets").
- To the extent that those carbon assets reduce GHG emissions, CC get canceled (and thus the borrowers do not have to repay that portion of the loan) => ex-post validation of carbon money affording society the social benefit of GHG reductions its issue helped to create.

Broader Carbon-Money Context

- On asset side central banks can carry the CC tranches of green-project bonds securitizing the carbon loans. These securitizations, based on covered-bond principles, turn riskier loans into higher-rated bonds to attract global savings pool.
- CC tranches (on asset-side of central banks and liability-side of private lenders) get written down when CC get canceled (on liability-side of central banks and asset-side of private lenders).
- CC also issued and canceled for liquidation of “stranded” assets to compensate owners of “brown” high-carbon assets for retiring those.
- Also idea of issuing digital carbon tokens for keeping below assigned carbon budgets that recipients can use within low-carbon SSE network.
- CC work in principle like SDRs and can thus be integrated into new SDR-based international monetary system.