How should central banks react to climate change?[1]

Central banks should not become climate activists. They should treat climate change and mitigation policies as macroeconomic drivers which can affect inflation, output, financial conditions, monetary transmission, the natural rate of interest and, most importantly, inflation expectations.

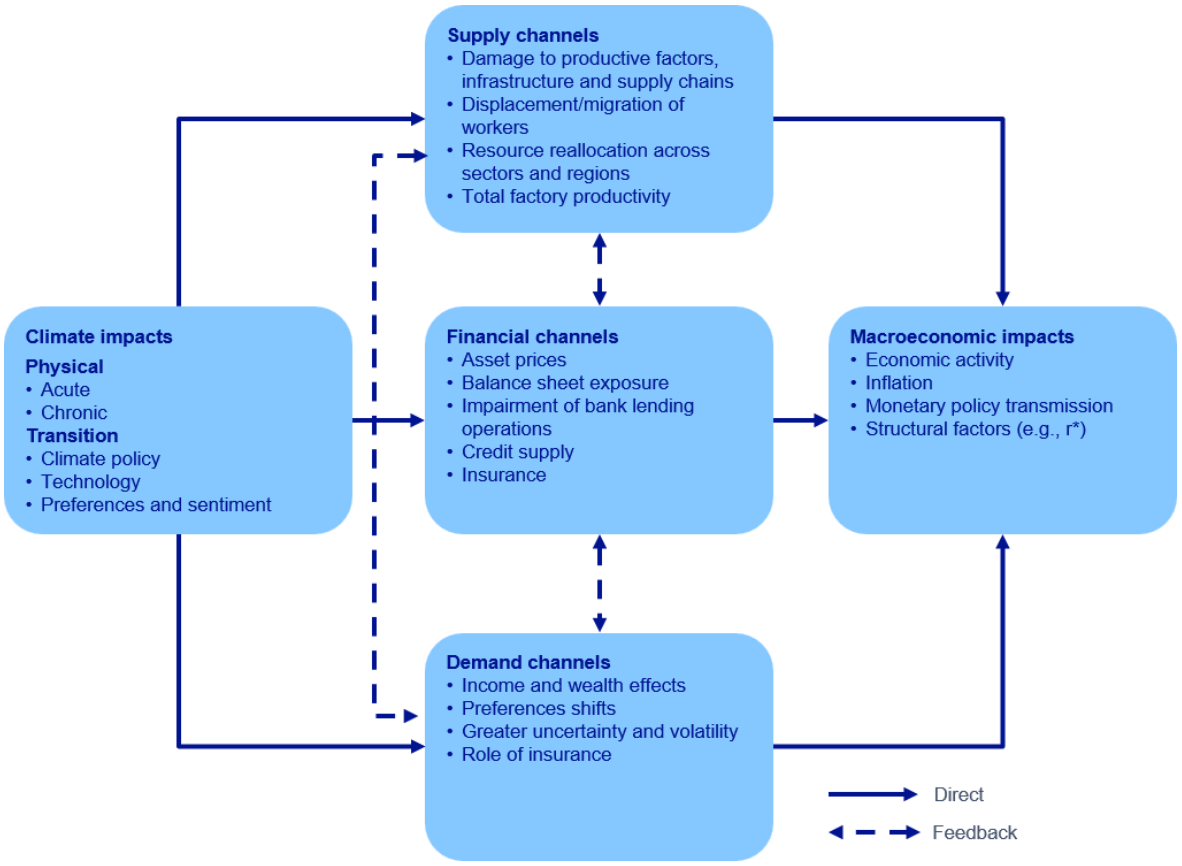
Governments are responsible for climate policy: carbon prices, subsidies, regulation and adaptation spending. Meanwhile, central banks take those policies, and the physical consequences of climate change, as given. Their role is to assess how these forces affect price stability, output stabilisation (where this falls within their mandate), financial conditions and the transmission of monetary policy.

This distinction matters for legitimacy. Climate change matters for monetary policy not because central banks should replace governments, but because it changes the macroeconomic environment in which they pursue their mandates.

Climate-related impacts propagate through supply, demand and financial channels, ultimately affecting inflation, economic activity, monetary policy transmission and structural factors (such as the natural rate of interest). **Figure 1** captures the point visually. Climate hazards can damage productive factors and infrastructure, disrupt supply chains, move workers across regions and sectors, affect asset prices and collateral values, tighten credit supply, and change household income, wealth and preferences. Even a central bank with a narrow price-stability mandate cannot ignore these channels if they alter the inflation outlook or the path of economic activity.

1: All the information contained in this document is taken from two Network for Greening the Financial System (NGFS) reports: "*The macroeconomic effects and monetary policy implications of climate mitigation policies: results from a new quantitative analysis*" and "*Climate change and monetary policy strategy: a guide for central banks*".

Figure 1. PROPAGATION OF CLIMATE/RELATED IMPACTS TO THE MACROECONOMY



Source: BBVA Research from NGFS

The monetary policy problem is familiar in principle, but more complex in practice. As with any other shock, the key questions are: what is the expected effect on inflation and output over the policy horizon? How persistent is it? Through which channels does it propagate?

- **Droughts and heatwaves** can behave like negative supply shocks. While the former tends to reduce output and increase inflation, the latter can also reduce output and generate inflation volatility.

- **Floods and tropical storms** can also destroy capital, although their aggregate impact depends on insurance coverage, reconstruction spending, fiscal support and the structure of the affected local economy.

- **Transition policies** can raise relative prices in carbon-intensive sectors, but their macroeconomic impact depends on how quickly they are introduced, how revenues are recycled and whether they are credible.

The crucial distinction is between first-round relative-price effects and broader inflationary pressure. If a one-off climate event raises food or energy prices temporarily while expectations remain anchored, the central bank can often look through the initial price

increase.[2] But the case for looking through weakens when shocks are large, repeated, salient to households or likely to feed into wages, firms pricing decisions and medium-term inflation expectations. The more climate change makes supply shocks frequent and persistent, the less safe it becomes to treat each shock as transitory in isolation.

A recent **NGFS report models climate mitigation policies using the IMF Global Macroeconomic Model for the Energy Transition (GMMET).** Its central message is that mitigation policies can create a near-term monetary policy trade-off. Carbon pricing and related measures raise the cost of fossil-fuel-intensive production and can push up headline inflation, especially through energy prices. At the same time, they can weigh on investment and economic activity in the short to medium term, as carbon-intensive capital becomes less profitable and the transition requires costly reallocation. The result is a classic supply-side dilemma: inflation rises while activity weakens.

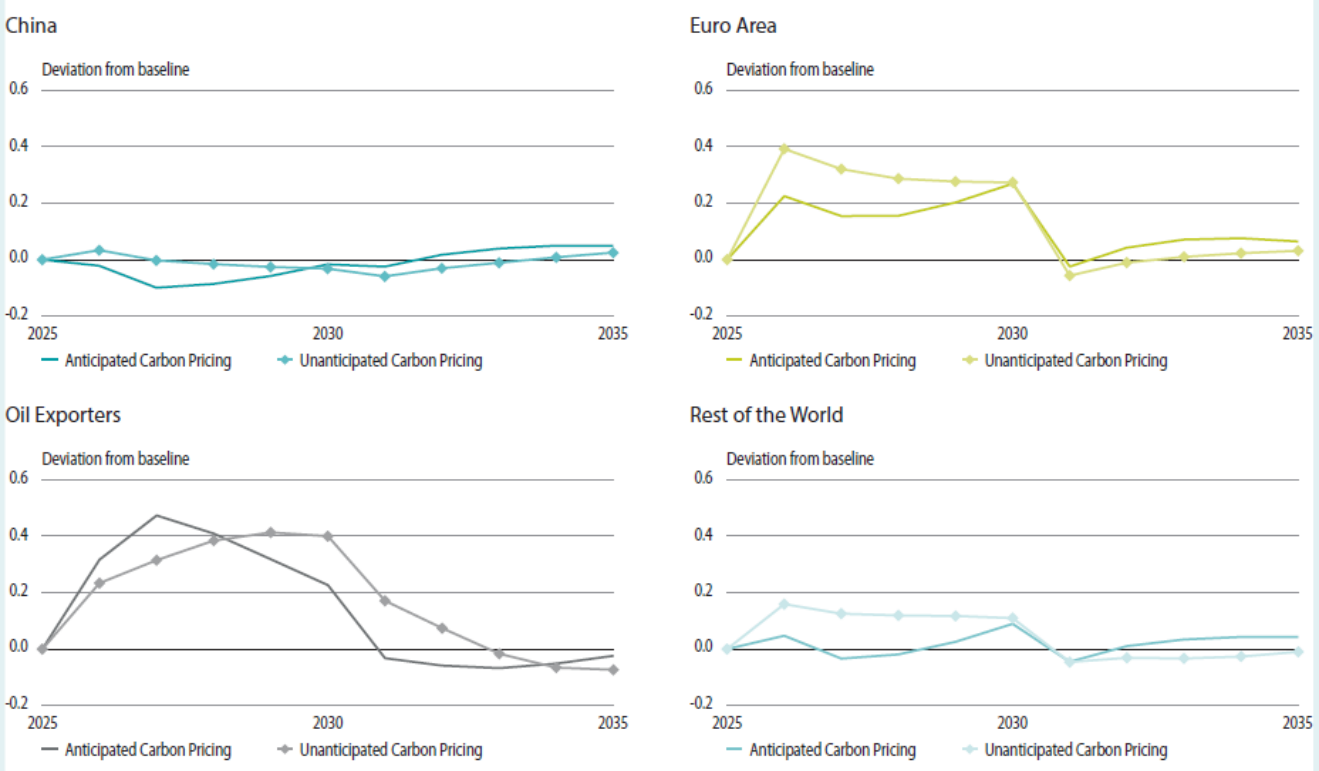
But the trade-off is not mechanical. It depends strongly on policy design. Carbon pricing with revenues returned to households has different macroeconomic effects from a broader policy mix that recycles part of the revenue into green investment subsidies or combines carbon prices with regulation. Subsidies to low-carbon capital can support investment and reduce some inflationary pressure over time by lowering the cost of clean alternatives.

The effectiveness and macroeconomic consequences of the policy mix also depend on the structure of the economy. Oil-exporting economies, for example, face a different configuration because lower fossil-fuel demand can reduce export revenues and depreciate the currency, amplifying imported inflation. For this reason, central banks should not only consider emissions targets; they need to take into account the policy mix used to reach that target.

Expectations and credibility are the strongest link between climate policy and monetary policy. If the transition path is predictable, gradual and credible, firms, households, financial markets and exchange rates adjust before the policy fully takes effect. This smooths the macroeconomic adjustment and can keep inflationary effects more contained. If climate policy is unanticipated or not believed, the adjustment is delayed. Firms do not reallocate investment early, households and markets do not price the future policy path, and the eventual carbon price increase produces a larger short-run inflation impulse. The NGFS quantitative report shows exactly this: unanticipated carbon pricing generates higher headline inflation in most regions than anticipated carbon pricing, making the central bank task harder.

2: Central banks should evaluate the type and persistence of an economic shock, its effects on inflation, expectations, fiscal policy, and monetary transmission channels before deciding on a policy response. Depending on these factors, they may maintain the current stance, tighten policy to control inflation, or allow a slower return to the inflation target to minimize economic losses.

Figure 2. HEADLINE INFLATION UNDER ANTICIPATED AND UNANTICIPATED CARBON PRICING PER REGION (PERCENTAGE POINTS)



Source: BBVA Research from NGFS

What does this all mean for the reaction function and communication strategy? First, climate variables should be embedded in the forecasting process. Physical hazards, energy and food exposure, insurance coverage, fiscal response, transition policy paths, carbon prices, subsidies and regulation all matter for the inflation and output outlook.

Second, scenario analysis should become a normal part of policy deliberation. Climate shocks are uncertain, nonlinear and often poorly captured by historical averages. Alternative transition paths and physical-risk scenarios can help central banks assess risks around the baseline. This has already been done recently given the heightened uncertainty derived from the War in Iran and the blockage of the strait of Hormuz.

Third, the central bank should communicate clearly how it distinguishes relative-price changes from persistent inflation. It should be willing to look through temporary first-round effects when expectations remain anchored and medium-run inflation target guaranteed. But it should respond more forcefully when shocks become repeated, broad-based or likely to de-anchor expectations.

Communication is therefore a key part of the policy toolkit. The central bank should explain that governments are responsible for climate policy, while the central bank is responsible for the macroeconomic consequences relevant to their mandates. They should also explain which indicators will shape the policy decision: headline and core inflation, wage

growth, inflation expectations, credit conditions, fiscal support, exchange rates and the expected persistence of the shock.

All in all, climate change does not overturn monetary policy theory, but it changes the distribution, frequency and persistence of the shocks central banks face. The right response is not a climate mandate for monetary policy, but a more climate-aware macroeconomic framework. Central banks should preserve price stability by forecasting climate-related shocks, testing alternative transition paths, protecting inflation expectations and communicating clearly when they look through shocks and when they do not.

Highlights of the Week

US	**Guest post: How US renewable-energy growth persists despite federal policy uncertainty - Carbon Brief.** Despite recent shifts in federal energy policies, our analysis shows that the US transition to renewable energy is continuing. This is thanks to the falling cost of renewable energy technologies, investments spurred by the Inflation Reduction Act and Bipartisan Infrastructure Law and local and state policies, according to our research at the Center for Global Sustainability, University of Maryland.
EU	**Batteries and demand flexibility are ready to scale across the EU | Ember**. In grid operators' scenarios, rapid battery growth emerges alongside smart EV charging and heating to reduce reliance on fossil-based flexibility in the EU.
ECB	**Carbon emissions of ECB and Eurosystem portfolios continue to decline**. Eurosystem and ECB portfolios on track to meet emissions reduction targets. Inflation-adjusted emissions metrics disclosed for the first time to further improve transparency. Green bond share in ECB own funds increases further, supporting green transition.

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