

Monetary Policy & Central Banking

Monetary policy framework

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Framework

- Central banks make decisions about monetary policy.
- But those decisions require a framework:
 - What is monetary policy trying to achieve?
 - How does the central bank decide what policy is appropriate?
 - What instruments does it use to implement its decisions?
- A monetary-policy framework provides a systematic structure for answering these questions.
 - Sometimes called the *monetary policy strategy*.
 - “*The grammar of monetary policy.*”

What do we need to understand about a monetary-policy framework?

- **Objectives**
What is monetary policy trying to achieve?
- **Central bank independence**
How should responsibility be divided between elected officials and the central bank?
- **The nominal anchor**
What anchors the price level and inflation expectations?
- **Setting policy under inflation targeting**
How are policy decisions made?
- **Policy instrument**
What does the central bank adjust to implement its decisions?

1. Objectives: what should monetary policy achieve?

What should monetary policy achieve?

- That depends first on what monetary policy can actually achieve.
- The key distinction is between **nominal** and **real** variables.
- In the long run, monetary policy determines nominal rather than real variables (monetary neutrality).
- So monetary policy can affect: inflation and the price level.
- But it cannot permanently increase: real output, employment or productivity.
- In the long run, these depend primarily on real factors, e.g., technology, labour supply, capital and institutions.

But real short run effects

- Prices and wages do not adjust instantaneously.
- Changes in monetary policy can therefore affect:
- Borrowing costs → Consumption and investment → Aggregate demand → Output and employment.
- So monetary policy faces an important long run vs short run distinction.
- This is why central banks can care about both price stability and fluctuations in economic activity, even though monetary policy cannot permanently determine real output.

Why price stability?

- If monetary policy cannot permanently raise real output, its main long-run contribution is to provide a stable nominal environment.
- High or unstable inflation can:
 - increase uncertainty about future prices;
 - distort contracts and financial decisions;
 - redistribute wealth unpredictably between borrowers and lenders.
- Price stability therefore provides the stable nominal environment within which households and firms make economic decisions.
- But should it be the central bank's only objective?

One objective or several?

- Central banks may be concerned with several objectives:
- Price stability, output and employment stability, exchange-rate stability, financial stability
- Objectives may or may not be complementary.
 - AD shock may cause both $Y \downarrow$ and $\pi \downarrow$. Easier monetary policy can then stabilise both output and inflation.
 - AS shock causes $\pi \uparrow$ and $Y \downarrow$. Then reducing inflation may require tighter monetary policy $i \uparrow$, further weakening economic activity.
- Therefore: multiple objectives can create short-run trade-offs.

Mandate and operational target

- **Mandate:** the objectives assigned to the central bank through the legal/political process.
- The price-stability objective may then be given a numerical definition or target e.g., 2% inflation.
- Who sets that numerical target differs across central banks.

Task 1: What is your central bank trying to achieve?

- Using the central bank's own website, find:
- **What is its monetary-policy mandate?**
- **Who determined the mandate?**
- **Is the numerical target defined? By whom?**
 - Is there a horizon / timeline for achieving it?
- **Who determines the numerical target?**
- **Does the mandate give the bank other objectives?**
- **If so, is there a clear priority?**

2. Central bank independence

- Who should make monetary policy decisions?

Who should make monetary-policy decisions?

- **Goals:** What should monetary policy achieve?
 - These are ultimately matters of public policy and democratic choice.
 - Monetary policy objectives are usually established within the mandate (legal and political framework).
- **Instruments:** How should those objectives be achieved?
 - This is what we typically mean by central bank independence.
 - The central bank has discretion over how to use monetary-policy instruments to pursue the objectives it has been given.
- Why might a government delegate monetary policy decisions to an independent central bank?

The problem of time inconsistency

- Suppose policymakers would like both low inflation and high output and employment.
- Once wages and prices are set, policymakers can have incentive to create **unexpected inflation** to stimulate economic activity.
- Promise low inflation -> Wages and prices are set -> incentive to create surprise inflation to boost employment
- BUT cannot surprise people repeatedly.

Why might central-bank independence help?

- Households and firms understand this incentive to create surprise inflation.
- If they expect policymakers to generate inflation, then $E(\pi) \uparrow$, and wages and prices adjust accordingly.
- The result can be higher inflation without higher output.
- Delegating monetary policy decisions to an independent central bank can make a commitment to price stability more credible.

Independence requires accountability

- Independence gives central banks a lot of power.
- For democracies, a question is how are they accountable to the population.
- This creates one role for central bank communication:
 - Explain how decisions are consistent with the mandate
 - publish information and analysis
 - report to elected institutions.
- (We return to communication and expectations in a later class.)

Task 2: Independence and accountability

Find concrete evidence of how it is held accountable for its monetary-policy decisions.

- To whom is the central bank formally accountable?
- What formal mechanisms are used to hold it accountable?
- What does the central bank publish to explain its monetary policy decisions to the public?

3. The nominal anchor

- What anchors the price level and inflation expectations?

Nominal anchors

- Central banks have a mandate to maintain price stability.
- How do they achieve it?
- A **nominal anchor** is a nominal variable or commitment that provides a reference point for the price level and inflation expectations.
- Examples: Metal, monetary aggregates/money supply, exchange rate, inflation

Metal as a nominal anchor

- The value of money can be fixed in terms of a commodity (usually gold or silver) -> every unit of currency can be converted.
- Convertibility into metal constrains monetary expansion because the monetary authority must remain able to maintain the fixed conversion price.
- Modern fiat currencies are no longer convertible into a commodity at a fixed price.
- So what else can provide the nominal anchor?

Money growth as a nominal anchor

- Start from the quantity equation: $MV = PY$
- where: M = money supply, V = velocity of money, P = price level, Y = real output.
- Taking growth rates: $\Delta m + \Delta v = \pi + \Delta y$ or, rearranged: $\pi = \Delta m + \Delta v - \Delta y$
- If Δv and Δy are reasonably predictable, the central bank can choose money growth consistent with its inflation objective:
$$\Delta m^* = \pi^* + \Delta y^e - \Delta v^e$$
- So the monetary aggregate becomes the **intermediate target**:
- Policy instrument (i) -> money growth target -> inflation objective

Why did money become a less reliable anchor?

- Monetary targeting requires a sufficiently predictable relationship between: M and PY .
- But financial liberalisation and innovation changed how households and firms manage their financial assets.
 - Non-monetary assets became close substitutes for money.
 - Relationship between money and the economy became unstable.
 - Impaired the controllability of money.
- So the relationship between money growth and nominal spending/inflation became less reliable.
- “We didn’t abandon the monetary aggregates, they abandoned us” (Governor , Bank of Canada).

Exchange rate as a nominal anchor

- A country can instead fix the value of its currency against the currency of a country with a credible low-inflation monetary policy.
- S = domestic-currency price of foreign currency.
- A fixed exchange rate implies: $\Delta s = 0$
- Approximately: $\pi = \pi^* + \Delta s$
- so under a credible fixed exchange rate: $\pi \approx \pi^*$
- The country effectively **imports the anchor country's inflation rate**.

The cost of an exchange-rate anchor

- Maintaining the exchange rate constrains domestic monetary policy.
- If there is downward pressure on the domestic currency: $S \uparrow$
- Then the central bank may raise i to defend the exchange rate.
- But that interest rate may not be appropriate for domestic economic conditions.
- Assuming free capital mobility, an exchange-rate anchor implies reduced monetary-policy autonomy.

Inflation as the nominal anchor

- Under inflation targeting, the central bank makes an explicit commitment to a numerical inflation target.
- The target provides a reference point for:
 - The central bank's monetary-policy decisions
 - Expectations about future inflation
 - The evaluation of monetary-policy performance
- Unlike a money growth or exchange rate target, the anchor is stated directly in terms of the inflation rate.

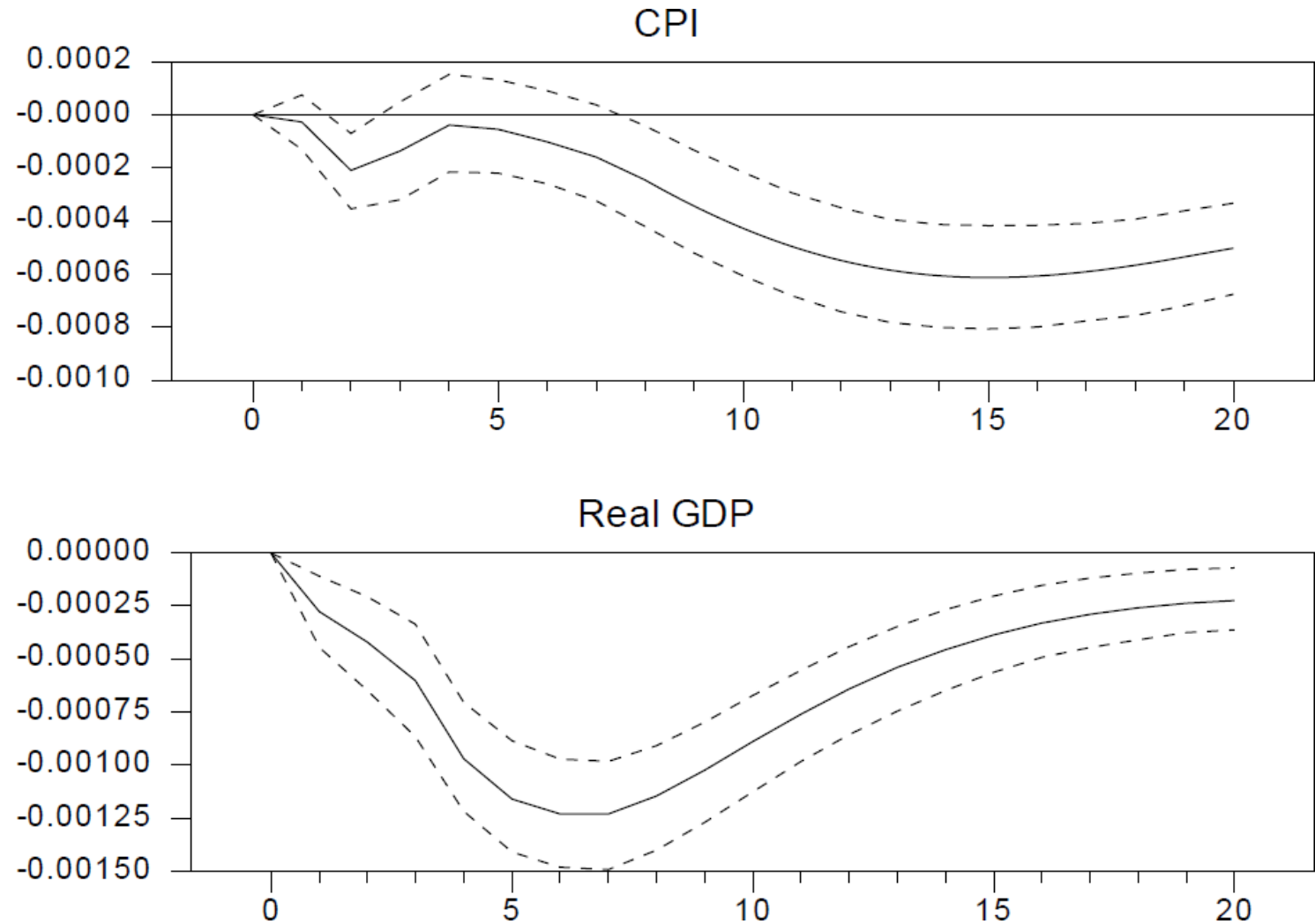
4. Setting policy under inflation targeting

- How does the central bank decide what policy is appropriate?

Monetary policy works with lags

- The central bank cannot control inflation today directly.
- Instead use policy rates which affect inflation indirectly.
- Impact on financial conditions through many channels:
 - **Interest-rate channel:** $i \uparrow \rightarrow$ borrowing costs $\uparrow \rightarrow C \downarrow, I \downarrow$
 - **Asset-price / wealth channel:** $i \uparrow \rightarrow$ asset prices $\downarrow \rightarrow C \downarrow, I \downarrow$
 - **Exchange-rate channel:** $i \uparrow \rightarrow$ exchange rate appreciates $\rightarrow NX \downarrow$

- Channels reduce aggregate demand: $C, I \downarrow, NX \downarrow$
- That leads to less pressure on wages and prices, and $\pi \downarrow$
- Stages take time: policy change today affects inflation mainly in the future.



Inflation targeting is forward-looking

- Monetary policy affects inflation with a lag.
- So policy must respond not simply to inflation today, π_t
- Needs to consider expected future inflation: $E_t(\pi_{t+k})$.
- $E_t(\pi_{t+k}) > \pi^*$ case for tighter monetary policy
- $E_t(\pi_{t+k}) < \pi^*$ case for easier monetary policy
- Inflation targeting is inherently forward-looking.

Policy decisions are made under uncertainty

- The central bank does not know π_{t+k} with certainty.
- Instead, it faces a distribution of possible outcomes: $P(\pi_{t+k} \mid I_t)$
- Uncertainty around:
 - future shocks
 - the current state of the economy
 - how the economy works
 - the effects and lags of monetary policy.
- Therefore policy cannot simply respond to a single point forecast.
- It must also consider risks and uncertainty around the forecast.

The source of inflation matters

- **Demand shock**
 - $AD \uparrow$ causes: $Y \uparrow, P \uparrow$. (P is the price level)
 - Tighter monetary policy reduces demand ($i \uparrow \rightarrow AD \downarrow$)
 - And therefore addresses the underlying source of the inflationary pressure.
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- **Supply shocks are a bit different**

Supply shocks

- Suppose there is a one-off increase in the world price of oil.
- This raises firms' costs and the prices of energy-intensive goods:
$$P_0 \rightarrow P_1.$$
- But if oil prices then **remain at their new higher level**, that does not by itself imply that prices continue increasing at the same rate.
- For example, if the price level jumps from 100 to 105 inflation initially rises.
- But if the price level then remains at 105 the direct contribution to inflation eventually disappears.

Why might monetary policy “look through” a supply shock?

- Suppose the central bank responds aggressively to the initial rise in headline inflation: $i_t \uparrow$.
- But monetary policy affects inflation only with a lag:
 - By the time an increase in i_t has its peak effect on inflation and activity...
 - The direct effect of the oil-price increase may already have disappeared from the inflation rate.
- Central bank risks unnecessarily depressing demand if it acts.
- So: there is a case for “looking-through” the shock.
- Medium-term inflation objectives.

But when should they *not* look through it?

- Suppose the oil-price shock starts as: oil price $\uparrow \rightarrow P \uparrow$.
- If that is all that happens, the inflation effect is temporary.
- But suppose it feeds into: wage demands $\uparrow$, then firms' costs $\uparrow$, then prices $\uparrow$ or $E_t(\pi_{t+k}) \uparrow$.
- Then a one-off relative-price/price-level shock can develop into **persistent inflation**.
- So the central bank needs to distinguish between:
 - Direct first-round effect
 - Persistent second-round effects
- Monetary policy should respond to the persistence and source of inflation, not simply the current inflation rate.

The role of inflation expectations

- Inflation today depends partly on expectations of future inflation.
- If the inflation objective is credible: $E_t(\pi_{t+k}) \approx \pi^*$
- Temporary shocks are less likely to become embedded in wage and price setting if expectations remain anchored: $E_t(\pi_{t+k}) \approx \pi^*$
- By contrast: Inflation shock $\rightarrow E_t(\pi_{t+k}) \uparrow \rightarrow$ wage and price setting $\uparrow \rightarrow$ more persistent inflation.
- Anchored expectations help prevent temporary inflation becoming persistent.

Task 3: How did your central bank reach its latest policy decision?

- What decision did it make?
- What does it say about the current inflation outlook?
- What factors does it identify as driving inflation?
- What evidence is there that the decision is forward-looking?
- What risks or uncertainties does it emphasise?
- What appears to have been the most important consideration behind the decision? Quote or point to the relevant passage.

Conclusion

- **Objectives**

Monetary policy is given objectives through the central bank's mandate, with price stability typically central.

- **Central bank independence**

The objectives are ultimately determined through the political process; the central bank is given independence over how to achieve them.

Conclusion

- **Nominal anchor**

A credible nominal anchor provides a reference point for the price level and inflation expectations.

Possible anchors include metal, money growth, the exchange rate, or an inflation target.

- **Setting policy under inflation targeting**

The central bank cannot control inflation directly or immediately.

Because policy operates with lags, decisions must be forward-looking and depend on the inflation outlook - including the source and persistence of inflation and the behaviour of expectations.