

Central Bank Communication

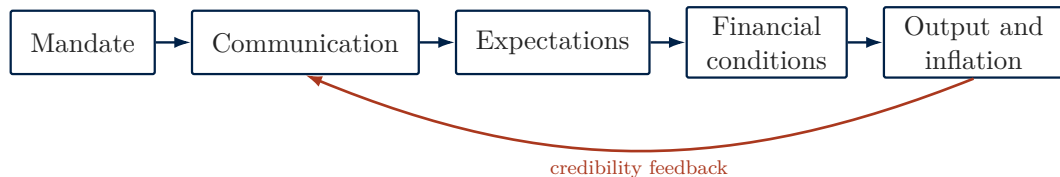
Words, expectations, and the anchoring of inflation in
modern monetary policy

Macro-Finance · Lecture 1 · Trinity Term 2026

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The lecture follows one governing mechanism



First half

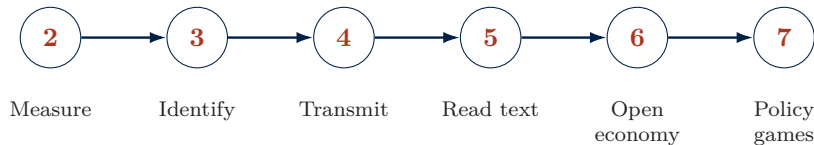
Communication fundamentals; risk and uncertainty; static, adaptive, rational, and behavioural expectations.

Second half

Anchoring and forward guidance; independence and reputation; hawks, doves, and the policy trade-off.

Words move the economy only through beliefs, prices, decisions, and credibility.

The course moves from beliefs to policy games



Lectures 2–3

Measure expectations, then isolate the news that revised them.

Lectures 4–5

Trace transmission, then turn language and attention into data.

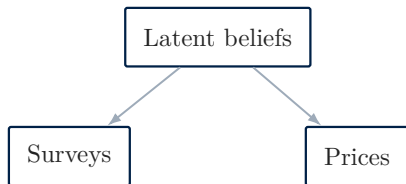
Lectures 6–7

Add currencies, global finance, controls, and strategic response.

Lecture 2: beliefs are latent, not directly observed

The object is an expectation formed *before* the outcome: future inflation, policy rates, exchange rates, or risk.

- Surveys record stated beliefs.
- Market prices reveal beliefs in real time.
- Announcement windows reveal belief updating.



Measurement is the prerequisite for empirical work on communication.

Lecture 2: each instrument reveals a different belief

- **Fed funds futures and OIS** price expected policy rates.
- **Breakevens and inflation swaps** price expected inflation.
- **Bonds, FX, equities, and options** expose broader macro-financial expectations.
- **Narrow event windows** isolate the revision around central-bank news from other macro news.

Market prices combine expectations with risk and liquidity premia. A price is an informative signal, not a pure survey response.

Lecture 3: a policy change is not a policy surprise

A monetary-policy surprise is the change in expected policy measured from asset prices in a narrow window around central-bank news.

Near contracts

Primarily capture target-rate news.

Longer contracts

Capture path, forward-guidance, and balance-sheet news.

The empirical question is whether statements move markets beyond the rate decision: actions versus words.

Lecture 3: identify the news, then estimate the response

$$\Delta asset_t = \alpha + \beta surprise_t + u_t.$$

$\Delta asset_t$: event-window price change · β : asset sensitivity · u_t : disturbance.

- Text measures tone, topics, uncertainty, and stance.
- Principal components separate target, path, and longer-horizon factors.
- Event windows reduce contamination by unrelated news.

α and β are regression coefficients here; both symbols take different meanings later in the lecture.

Lecture 4: estimate transmission across assets and horizons

$$\Delta y_{i,t,h} = \alpha_i + \beta_i MPsurprise_t + u_{i,t,h}.$$

i : asset or country · t : announcement · h : response horizon · β_i : transmission coefficient.

Domestic

Rates, equities, credit, FX, inflation compensation.

International

Same-window foreign prices and cross-border spillovers.

Lecture 4: transmission has many destinations

Prices

Short and long rates, equities, FX, commodities.

Premia

Credit spreads, volatility, inflation compensation.

Components

Expected short rates, term premia, balance-sheet and guidance channels.



Lecture 4: exposure determines who absorbs the shock

- Global risk appetite, dollar funding, capital flows, and cross-border premia.
- Emerging-market exposure through foreign debt, reserves, exchange-rate regime, and central-bank credibility.
- Pass-through to foreign short rates, long rates, and forward curves.

Use narrow windows, controls, panels, and heterogeneity tests to ask why the same identified surprise produces different outcomes.

Lecture 5: language becomes an economic variable



Possible outputs: tone, topic, attention, uncertainty, hawkishness or dovishness, and perceived restrictiveness.

The aim is economic measurement, not programming for its own sake.

Lecture 5: wording is linked to market reaction

- Measure sentiment, uncertainty, inflation concern, and stance.
- Link wording to intraday moves in rates, equities, FX, credit, and inflation compensation.
- Use topics or word shares to detect emphasis and omission.

Text measures become useful when they explain an economically meaningful outcome or help identify the information arriving in an event window.

Lecture 5: attention and omission are data too

Attention

Social media, Google Trends, news rankings, and page views reveal what the public notices.

Issue framing

Climate communication can be measured through risk language, financial stability, supervision, and asset-purchase criteria.

A communication measure must capture what is said, what is omitted, and who notices.

Lecture 6: globalisation turns rates into currency prices

Covered interest parity is the no-arbitrage benchmark linking spot, forward, and safe interest rates.

Financial globalisation connects domestic and foreign rates, exchange rates, risk sharing, and monetary-policy spillovers.

Offshore–onshore gaps can reflect segmentation, regulation, collateral, and funding constraints.

Lecture 6: UIP turns a parity condition into a puzzle

- Uncovered interest parity says a high-rate currency should depreciate enough to offset its yield advantage.
- Carry trades test that claim by borrowing low-rate and buying high-rate currencies.
- High-rate currencies often appreciate: the forward-premium puzzle.

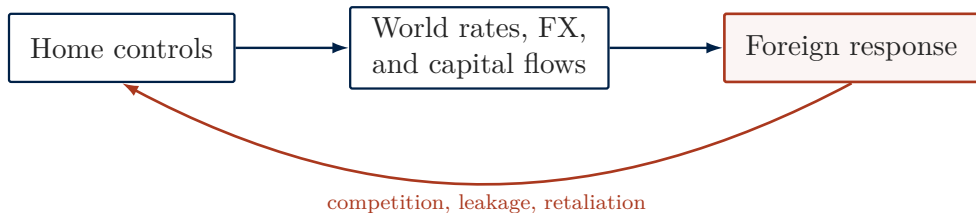
When parity fails, classify the gap: friction, risk premium, or empirical puzzle.

Lecture 7: capital controls trade resilience for distortion

Controls are taxes, limits, or administrative rules on capital inflows and outflows.

- They may correct borrowing or lending externalities that create crisis risk, exchange-rate pressure, or fragility.
- Quantitative restrictions limit who may borrow, lend, invest, or convert currency.
- The optimal choice weighs stability against lost finance and misallocation.

Lecture 7: domestic stabilisation becomes a policy game



A large country's restrictions change prices and flows faced by everyone else. Decentralised policy choices therefore interact strategically.

Presentation: turn one course method into an argument

Format

Week 8; groups of 3–5; 20 minutes plus questions; professional slides; lecturer-only audience.

Weight

25% of the course mark.

Option A: high-effort/high-return empirical use of high-frequency or data-science methods for a current research question.

Option B: standard-effort/standard-return critical evaluation of a reading-list topic.

Assessment combines a group argument with individual synthesis

25%

Group presentation

Week 8

75%

Final examination

Two hours; answer three of five questions

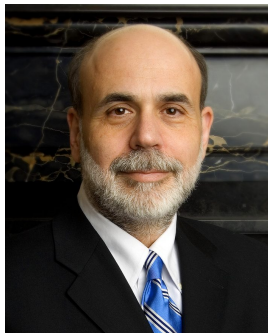
The presentation rewards application; the examination rewards selective, coherent analysis.

Part I

Central bank communication fundamentals

Definitions, audiences, channels, and why words are policy

If policy is “98% talk”, what makes the talk bind?



Ben S. Bernanke, Federal Reserve Chair 2006–14.

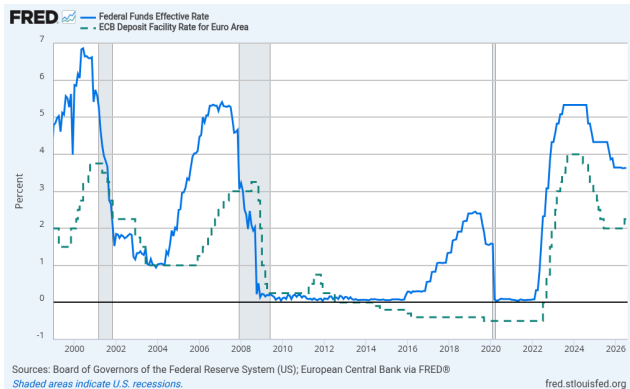
“Monetary policy is 98% talk and only 2% action.”

Ben S. Bernanke on central-banking practice, 2015.

The policy rate is one number, set at discrete meetings. Markets price thousands of forward rates from the language that explains it.

Question for the lecture: under what conditions does the language become the policy?

One lever sits inside thousands of forward prices



FRED series DFF and ECBDFR, static snapshot acquired 24 July 2026. Live source: FRED graph 1VkPH.

Rates move discretely; the communication system around them operates continuously.

Draghi made a contingent promise, not a slogan



Mario Draghi, ECB
President 2011–19.

“Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough.”

London, 26 July 2012. The institutional context mattered: Outright Monetary Transactions supplied a state-contingent backstop.

Communication becomes policy when a credible institution can support its words with instruments.

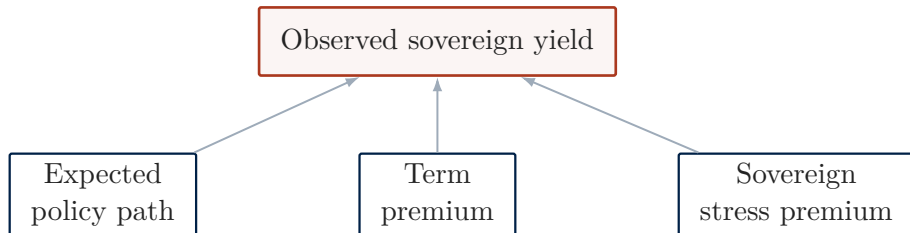
Four dates reveal a repricing of euro-area tail risk

Date	Italy 10y	Spain 10y	EUR/USD
24 Jul 2012	6.6%	7.6%	1.21
12 Sep 2012	5.1%	5.7%	1.29
13 Dec 2012	4.6%	5.5%	1.31
20 Dec 2013	4.1%	4.1%	1.37

- OMT was never deployed.
- Credible, state-contingent words lowered sovereign stress.

Source wording calls this “three sentences, three years”, although the displayed dates span July 2012–December 2013; retain for later review.

A stressed yield contains three distinct prices



$$y_t^{(n)} \approx \frac{1}{n} \sum_{j=0}^{n-1} E_t[i_{t+j}] + TP_t^{(n)} + SP_t.$$

Draghi compressed stress; guidance usually shifts the path

Expected path

$E_t[i_{t+j}]$ is the expected future short or policy rate, conditional on information at t .

Term premium

$TP_t^{(n)}$ compensates duration and interest-rate risk.

Stress premium

SP_t covers default, illiquidity, and currency-union redenomination risk.

Source interpretation

July 2012 primarily compressed SP_t ; routine forward guidance primarily targets $E_t[i_{t+j}]$.

The same speech can move a yield through different components; identify the component before naming the channel.

Communication is a strategic policy input

Central-bank communication is the strategic provision of information about the mandate, economic assessment, decisions, instruments, balance of risks, and likely reaction function to distinct audiences through distinct channels for policy and institutional purposes.

The definition contains four choices: **content**, **audience**, **channel**, and **purpose**. None can be inferred from publication alone.

Communication is an instrument when it changes beliefs relevant to decisions.

Transparency answers: what is published, when, and how fully?

Transparency is an institutional commitment to openness.

Decisions

Rules

Minutes

Forecasts

Votes

Regular publication creates an information environment in which outsiders can inspect choices, evidence, and disagreement.

Communication answers: how is policy meaning conveyed now?

Communication is the active, time-specific use of language, timing, and interaction to convey policy content.

- Statements, speeches, press conferences, and interviews select emphasis.
- Timing determines which audience is attentive and what comparison is made.
- Interaction reveals how an audience maps information into meaning.

A transparent bank can still communicate poorly when its reaction function is unreadable or its messages conflict.

Meeting-day channels reveal decision and reasoning

Announcement

Decision and rationale at meeting close.

Press conference

Chair or governor briefing plus real-time questions that probe the reaction function.

Minutes

Discussion, votes, and balance of arguments, released with a lag.

The decision is one object; the rationale and deliberation are separate information releases.

Between meetings, communication becomes a regime

Reports

Inflation, Monetary Policy, and Financial Stability Reports.

Forecasts

Inflation, output, and sometimes policy paths: Fed SEP/dots and ECB staff projections.

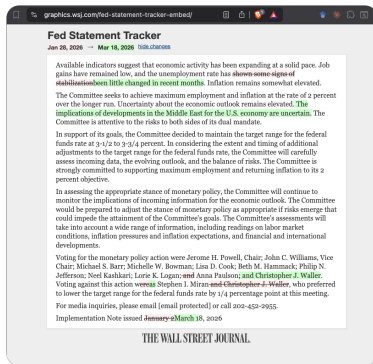
Speeches and testimony

Policymaker views and parliamentary accountability between meetings.

Each of the six channels exposes a different combination of stance, outlook, reaction function, and risk assessment.

Six channels, one regime: their consistency is itself a policy choice.

Statement revisions turn marginal words into news



WSJ Fed Statement Tracker, comparison of the 28 January and 18 March 2026 FOMC statements: interactive source.

Markets read additions and deletions as revisions to stance, outlook, or reaction function.

The Chair's face carries incremental information



Panel A: Ben Bernanke, March 30 th 2013	
Emotion	Intensity Score
Anger	0.00
Contempt	0.00
Disgust	0.00
Fear	0.00
Happiness	1.00
Neutral	0.00
Sadness	0.00
Surprise	0.00



Panel B: Janet Yellen, December 14 th 2016	
Emotion	Intensity Score
Anger	0.02
Contempt	0.00
Disgust	0.00
Fear	0.00
Happiness	0.00
Neutral	0.98
Sadness	0.00
Surprise	0.00



Panel C: Jerome Powell, January 30 th 2019	
Emotion	Intensity Score
Anger	0.00
Contempt	0.05
Disgust	0.00
Fear	0.00
Happiness	0.00
Neutral	0.94
Sadness	0.01
Surprise	0.00

Figure A1: Emotion Intensity Scores

This figure presents emotion intensity scores as captured by the Microsoft Azure Cognitive Services Emotion API. Panel A shows Ben Bernanke during the FOMC press conference held on March 30th, 2013, Panel B shows Janet Yellen during the FOMC press conference held on December 14th, 2016, and Panel C shows Jerome Powell during the FOMC press conference held on January 30th, 2019.

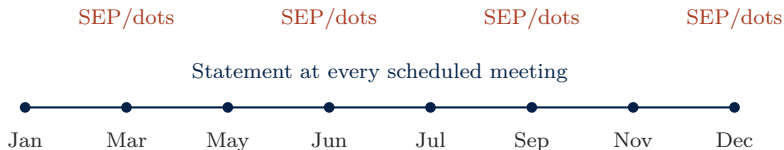
One standard deviation more negative expression in a three-minute window is associated with:

- SPY: -0.53 **bp**
- VIX: $+3.76$ **bp**
- EUR/USD: -0.18 **bp**

Effects survive controls for verbal tone, hawkishness, the rate decision, and market conditions.

Expressions align with later minutes, suggesting information rather than pure visual noise.

The annual FOMC layer has a predictable release rhythm



- Eight scheduled meetings in the stylised source year.
- A statement at each meeting; minutes about three weeks later.
- SEP and dot plots four times: March, June, September, December.

The source graphic shows press conferences on alternating meetings; current Federal Reserve practice is a conference after every scheduled meeting.

Communication continues before and long after the meeting

Continuous layer

- Policymaker speeches
- Congressional testimony
- Interviews and public Q&A
- Research, analysis, and conferences

Periodic and archival layer

- Monetary Policy Report: February and July
- Jackson Hole: August
- Full transcripts: five-year lag

Meeting signals are immediate; discretionary messages are continuous; deliberative archives arrive much later.

Central banks moved from secrecy to reluctant explanation

1930s–1980s: secrecy

Sir Stephen Harvey warned that giving reasons was dangerous.

“Never explain, never excuse.”

Montagu Norman

1990s: transition

Alan Greenspan joked that he had learned to “mumble with great incoherence” and that excessive clarity meant the listener must have misunderstood.

Opacity was once treated as a source of discretion; the 1990s began to reverse that presumption.

Modern policy treats expectations as the operative margin



Michael Woodford,
Jackson Hole 2005.

“Not only do expectations about policy matter, but, at least under current conditions, very little else matters.”

2000s: Yellen: “Sometimes the explanation is the policy.”

Post-2008: Bernanke: “98% talk, 2% action.”

The historical change is from concealing the reaction function to managing expectations through it.

Communication improves transmission through three margins

1. **Policy effectiveness:** make stance, strategy, and outlook legible so intended financial conditions materialise.
2. **Anchoring:** keep long-horizon expected inflation near target, raise credibility weight χ , and reduce shock persistence.
3. **Uncertainty:** make decisions more predictable, lower term premia, and damp announcement volatility.

Clear words can move current prices, expectations, and the distribution of future outcomes.

Accountability gives credibility a democratic foundation

Accountability

Explain the mandate, decision, and rationale to elected representatives and the public.

Credibility

Consistent, clear commitments make future words binding rather than cheap talk.

Words about the future are priced only when audiences believe the institution will act consistently with them.

Audience determines attention, vocabulary, and consequence

Audience	Attention	Consequence
Markets	High, fast	Immediate repricing in a narrow vocabulary
Price-setters	Low	Wage and price decisions feed inflation
Households	Very low	Salient prices dominate perception
Political bodies	Episodic	Accountability and legitimacy
Peer central banks	Specialist	Spillovers, coordination, credibility

There is no representative listener: the same sentence can move markets and remain invisible to households.

Channel determines lag, register, and information density

- **Decisions:** terse, immediate, high signal density.
- **Explanatory formats:** press conferences and reports in a looser register.
- **Deliberation:** minutes and transcripts, lagged, with dissent visible.
- **Forecasts:** projections and dots quantify the outlook.
- **Outreach:** speeches, testimony, blogs, and listening events.

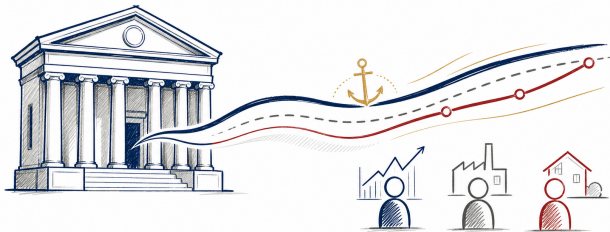
A message is inseparable from the channel through which an audience receives it.

Objective determines what success looks like

- **Anticipation:** make the reaction function readable.
- **Path-shaping:** move expected short rates.
- **Anchoring:** tie long-run inflation to target.
- **Accountability:** sustain democratic legitimacy.
- **Crisis stabilisation:** compress transmission tail risk.
- **Consistency:** prevent channels from contradicting one another.

Every objective needs an audience—channel match; consistency across those matches is a policy problem.

Communication works through expectations and decisions



1. **Signal:** reveal the intended policy path.
2. **Reprice:** reshape the yield curve.
3. **Act:** markets, firms, and households adjust.

Anchor: credible words keep long-run inflation expectations tied to the target.

Words become policy when they change beliefs and choices across the economy.

Part II

Risk and uncertainty

Distributions, scenarios, and the balance of risks

Risk means the outcomes and their probabilities are known

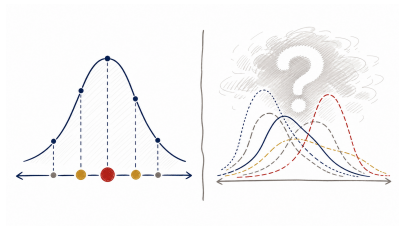
$$\{(y_i, p_i)\}_{i=1}^N, \quad \sum_{i=1}^N p_i = 1.$$

y_i : outcome in state i · p_i : probability of state i · N : number of states.

The future is not known, but the bank acts as if it can enumerate possible outcomes and attach probabilities to them.

Risk is a known distribution over unknown outcomes.

Risk and uncertainty require different forecast language



Risk: known distribution

Outcomes are unknown; probabilities are treated as known. Report the centre, dispersion, and tail balance.

Uncertainty: model doubt

Probabilities or the model are disputed. Report scenarios, assumptions, and model dependence.

Risk varies weights within one model; uncertainty questions the model itself.

Uncertainty means the distribution itself is disputed

$$Y_{t+h} \sim F_m(\cdot), \quad m \in \mathcal{M}.$$

F_m : distribution under candidate model m · $\mathcal{M}$: set of candidate models.

- Probabilities may not be known confidently.
- The relevant model may itself be contested.
- Scenarios, alternative paths, and qualitative risk language reveal what a single baseline suppresses.

Under risk, communicate the distribution; under uncertainty, communicate model dependence and alternatives.

A point forecast is one moment, not the forecast object

“Inflation will be 2.3%” is shorthand for one feature of

$$Y_{t+h} \mid \mathcal{I}_t,$$

the conditional distribution given information at date t .



A communication can leave the centre unchanged while moving uncertainty, skew, or tail risk.

Read a forecast distribution along four dimensions

Centre: $E_t[Y_{t+h}]$

Width: $\text{Var}_t(Y_{t+h})$

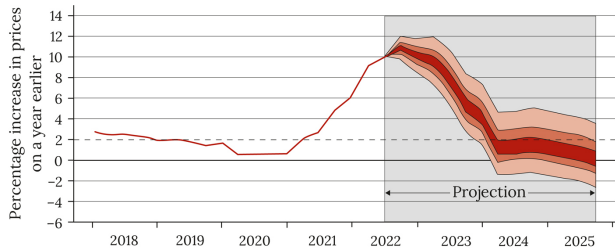
Skew: $\text{Skew}_t(Y_{t+h})$

Tail mass: $P(Y_{t+h} < \bar{Y}^{\text{bad}})$

Centre: quoted modal or mean path · width: confidence bands · skew: asymmetric risks · tail mass: probability beyond a catastrophic threshold.

The point forecast reports location; policy communication often targets the shape around it.

Draghi changed the catastrophic tail more than the centre



Bank of England CPI fan chart reproduced from the supplied ML1 source.

A fan chart makes three objects visible:

- the central path,
- widening uncertainty with horizon,
- asymmetric downside or upside risks.

“Whatever it takes” primarily reduced the perceived probability of a catastrophic euro-area state.

Communication can act on any moment of the forecast distribution.

Part III

Expectations

Static, adaptive, rational, and behavioural rules inside the Phillips curve

One Phillips curve needs an expectation rule to close it

$$\pi_t = \pi_t^e + \alpha(y_t - y_e) + u_t.$$

π_t : realised inflation

π_t^e : inflation expected when current wage
and price decisions were set

$y_t - y_e$: output gap

$\alpha > 0$: Phillips-curve slope in this
convention

y_e : equilibrium output

u_t : supply or cost-push disturbance

The Phillips curve describes inflation conditional on a belief; the expectation rule supplies that belief.

Four expectation rules create four different economies

Static: $\pi_t^e = \bar{\pi}$

Adaptive: $\pi_t^e = \pi_{t-1}^e + \lambda(\pi_{t-1} - \pi_{t-1}^e)$

Rational: $\pi_t^e = E_{t-1}[\pi_t \mid \mathcal{I}_{t-1}]$

Behavioural: $\pi_t^e = \mathbb{F}_{t-1}[\pi_t]$

$\mathbb{F}$ denotes a subjective belief operator allowing bounded attention, noisy updating, or bias.

Change the expectation rule and the policy mechanism changes

Parameters

The empirical meaning of α depends on how beliefs respond.

Residual

What is absorbed in u_t changes with the expectation model.

Announcements

A credible message may move inflation before current output moves.

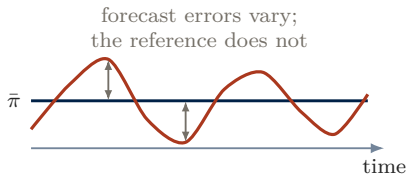
Expectations are not a decorative term added to the Phillips curve: they determine persistence, identification, and the reach of communication.

Static expectations hold the nominal reference fixed

$$\pi_t^e = \bar{\pi},$$

$$\pi_t - \pi_t^e = \pi_t - \bar{\pi}.$$

Every deviation of realised inflation from $\bar{\pi}$ is a forecast error; the reference itself does not update.



A fixed anchor creates level effects, not persistence

- **Passive benchmark:** expected inflation is given.
- **No mechanical update:** higher inflation today does not raise tomorrow's expected inflation.
- **Level effect:** current demand moves current inflation relative to $\bar{\pi}$, but supplies no endogenous propagation law.

Policy affects current demand; it does not operate by shifting beliefs about future inflation in this closure.

Static expectations are useful precisely because they remove the feedback from outcomes to beliefs.

With static expectations, the output gap shifts inflation's level

$$\begin{aligned}\pi_t &= \pi_t^e + \alpha(y_t - y_e) + u_t \\ &= \bar{\pi} + \alpha(y_t - y_e) + u_t \\ \pi_t - \bar{\pi} &= \alpha(y_t - y_e) + u_t.\end{aligned}$$

- A positive gap raises inflation above the fixed reference.
- A sustained gap does not, by itself, generate acceleration.
- The model implies a stable short-run slack–inflation-level trade-off.

Adaptive expectations learn from the last forecast error

$$\pi_t^e = \pi_{t-1}^e + \lambda(\pi_{t-1} - \pi_{t-1}^e), \quad 0 < \lambda \leq 1.$$

λ : speed of updating and weight placed on the previous forecast error.



At $\lambda = 1$, yesterday's inflation becomes today's belief

$$\lambda = 1 \implies \pi_t^e = \pi_{t-1}.$$

- Beliefs absorb the most recent error regardless of why inflation moved.
- Temporary shocks can persist as expectations ratchet upward.
- The longer inflation stays high, the harder disinflation becomes: policy must reverse inherited beliefs as well as current demand.

Backward-looking updating turns realised inflation into a state variable.

Adaptive expectations turn the Phillips curve into an acceleration equation

$$\begin{aligned}\pi_t &= \pi_t^e + \alpha(y_t - y_e) + u_t \\ \lambda = 1 &\implies \pi_t^e = \pi_{t-1} \\ \pi_t &= \pi_{t-1} + \alpha(y_t - y_e) + u_t \\ \Delta\pi_t &= \alpha(y_t - y_e) + u_t.\end{aligned}$$

The output gap now drives the change in inflation, not simply its level.

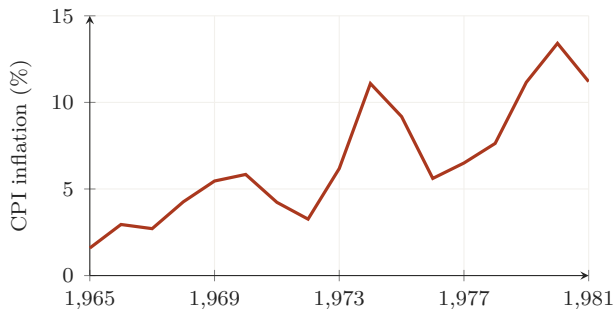
A permanent positive gap has no natural inflation stopping point

- The stable long-run inflation–output trade-off disappears.
- If $y_t > y_e$ persists, inflation continues to increase.
- Persistence comes from the expectation rule in this stripped-down model, not from contracts, sticky prices, or persistent shocks.

This is the accelerationist reading associated with Friedman (1968) and Phelps (1967).

Holding output above equilibrium changes the inflation rate repeatedly, not once.

The Great Inflation shows how outcomes can feed inherited beliefs



- Supply shocks lifted inflation.
- Accommodation allowed propagation.
- Wage indexation reinforced backward-looking inheritance.

Disinflation required a regime change visible as such, not merely a small tightening.

Values reconstructed from the inline SVG in ML1 source slide 39; original data provenance was not supplied.

Adaptive expectations ignore credible new information

1. **Purely backward-looking**: the rule omits forward information.
2. **Announcement-insensitive**: a credible regime change has no direct place in the updating equation.
3. **Not model-consistent**: the rule is imposed outside the model agents inhabit.

The shortcomings motivate a closure in which agents condition on the available information set and the systematic policy regime.

A useful theory of communication must allow beliefs to move before outcomes do.

Rational expectations are model-consistent conditional beliefs

$$\pi_t^e = E_{t-1}[\pi_t \mid \mathcal{I}_{t-1}].$$

$\mathcal{I}_{t-1}$: information available when the expectation is formed.

- Agents use all information in the conditioning set.
- Learnable systematic error patterns disappear.
- Only genuinely new information generates a forecast error.

Forecast errors can occur, but not predictably

$$E_{t-1}[\pi_t - \pi_t^e] = 0.$$



The error need not be small or zero ex post. The restriction is that it cannot be systematically forecast from information already available.

Systematic policy is anticipated; communication shapes the conditioning set

- A known policy rule is already embedded in conditional expectations.
- Unanticipated moves create forecast errors and news.
- Communication changes $\mathcal{I}_{t-1}$: the rule, outlook, risks, and credible commitments agents use today.

Credibility determines whether an announcement enters the information set as a believable state-contingent policy rule or as cheap talk.

Rational does not mean omniscient or policy-irrelevant

Misconception 1

“Agents are always correct.”

Actual claim

Errors occur, but $E_{t-1}[\pi_t - \pi_t^e] = 0$.

Misconception 2

“Only surprises matter, so policy is irrelevant.”

Actual claim

Sticky wages and prices allow real effects; systematic policy is anticipated in private decisions.

Rational expectations make communication more central

Misconception 3

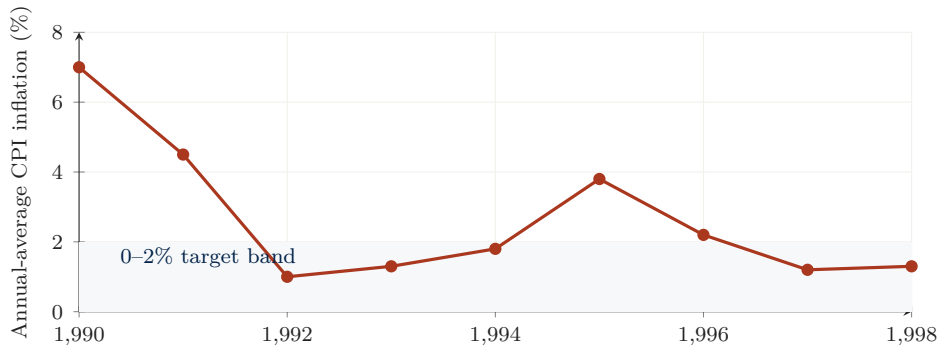
“Communication is decorative.”



A believed regime changes dynamics immediately. An announced but unbelieved regime does not.

Rational expectations shift the policy problem from repeated surprise to credible information.

New Zealand's inflation fell rapidly after inflation targeting



Annual values reproduced from ML1 source slide 42; RBNZ inflation targeting began in 1990.

The New Zealand case is consistent with a credible nominal anchor

- Inflation fell from about 7% in 1990 to about 1% in 1992.
- The source interprets this as faster than a purely backward-looking sequence of demand shocks could explain.
- Temporary post-1995 target deviations did not destroy the regime once it was understood.

This is a suggestive credibility interpretation, not by itself a causal identification design; the strong comparative claim requires evidence.

A credible, understood regime can shift expected inflation without repeated policy surprises.

Schembri: a clear target coordinates private decisions



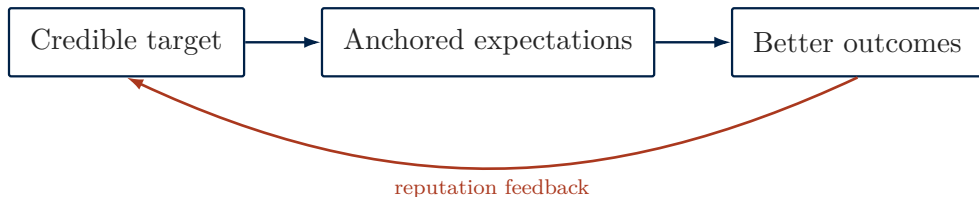
Lawrence Schembri, Bank of Canada.

Canada's inflation-control target performed better than expected: inflation stayed close to 2%, the target anchored and coordinated decisions, and interest-rate and output-growth volatility fell.

Faithful reconstruction of the supplied lecture quotation.

Anchoring and credibility reinforce one another

1. **Clarity and acceptance:** a simple 2% target was communicable, broadly accepted, and credible.
2. **Effectiveness:** firmly anchored expectations strengthened monetary-policy transmission.
3. **Reinforcement:** successful outcomes raised confidence that future inflation would remain on target.



The next step is to model credibility as an explicit anchoring weight, χ .

Part IV

Anchoring expectations

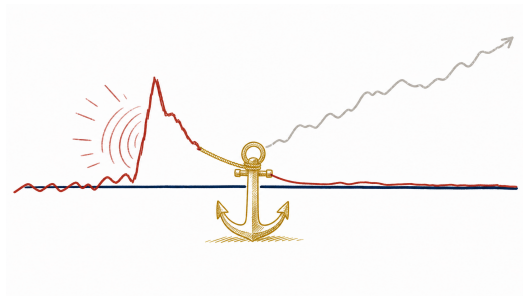
Credibility determines persistence—and the output cost of returning inflation to target.

Credibility anchors expectations after a shock

A compact expectations rule:

$$\pi_t^e = \chi \pi^T + (1 - \chi) \pi_{t-1}, \quad \chi \in [0, 1].$$

- **Gold anchor:** χ , the weight on the announced target.
- **Crimson path:** the shock fades as expectations return.
- **Grey path:** drift when the nominal anchor fails.



Marker illustration of anchoring after an inflation shock.

A larger χ shortens inflation persistence and lowers the output cost of returning to target.

Three expectation regimes

Regime	Weight	Expectation rule and implication
Fully anchored	$\chi = 1$	$\pi_t^e = \pi^T$. Past inflation does not move expected inflation.
Partially anchored	$0 < \chi < 1$	$\pi_t^e = \chi\pi^T + (1 - \chi)\pi_{t-1}$. A shock fades geometrically.
Unanchored	$\chi = 0$	$\pi_t^e = \pi_{t-1}$. Yesterday's inflation becomes today's reference point.

The same inflation shock can be temporary, persistent, or permanent solely because expectations are formed differently.

Whose expectations are we measuring?

Professional forecasters

- follow central-bank decisions closely;
- understand targets and reaction functions;
- often revise expectations quickly.

Households and firms

- observe salient prices and lived inflation;
- pay less continuous attention;
- may update slowly or asymmetrically.

An average forecast can hide weak anchoring among the agents who set wages and prices.

Market-based inflation compensation

$$\text{Breakeven inflation}_t^{(n)} \approx i_t^{N,(n)} - i_t^{R,(n)}$$

Nominal yield i^N compensates investors for the real return plus future inflation.

Real yield i^R is read from an inflation-indexed bond.

The **five-year, five-year forward** rate asks:

What inflation is priced for years 6–10?

In an inflation swap, one side pays a fixed rate and receives realised inflation; the quoted fixed rate is market compensation.

That horizon is useful for testing whether a current shock reaches medium-term beliefs.

A breakeven is inflation compensation, not a pure survey forecast.

Read anchoring in three dimensions

Diagnostic	Question	Warning sign
Level	Is long-run expected inflation close to target?	A sustained gap from π^T .
Sensitivity	Does distant expected inflation react to current news?	A large response of long-horizon measures to short-run surprises.
Premia	Is a market measure moving because beliefs changed?	Liquidity and inflation-risk premia move even if mean expectations do not.

No single measure identifies anchoring. Triangulate surveys, market prices, wage setting, and firms' pricing plans.

A shock enters the Phillips curve

$$\pi_t = \pi_t^e + \alpha x_t + \varepsilon_t, \quad \alpha > 0.$$

π_t : inflation
 π_t^e : expected inflation
 x_t : output gap
 ε_t : supply shock

Start from equilibrium:

$$\pi_{-1} = \pi^T, \quad x_t = 0.$$

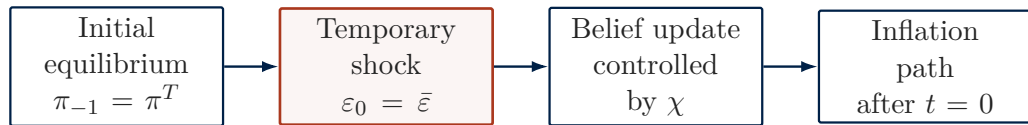
The experiment isolates how a one-period shock propagates through expectations.

The shock moves inflation on impact; expectations determine what survives after the shock is gone.

The experiment: one shock, one rule

$$\varepsilon_0 = \bar{\varepsilon} > 0, \quad \varepsilon_t = 0 \quad \forall t \geq 1,$$

$$\pi_t^e = \chi \pi^T + (1 - \chi) \pi_{t-1}.$$



Holding the output gap at zero first reveals the pure persistence mechanism.

Impact is common; propagation is not

At $t = 0$, initial expectations equal the target:

$$\pi_0 - \pi^T = \bar{\varepsilon}.$$

Once the shock disappears,

$$\pi_t - \pi^T = (1 - \chi)(\pi_{t-1} - \pi^T) = (1 - \chi)^t \bar{\varepsilon}, \quad t \geq 1.$$

- **Impact** depends on the size of the supply shock.
- **Persistence** depends on the anchoring parameter.
- Communication works here by changing the law of motion, not the initial shock.

The anchoring parameter is an eigenvalue

Define the inflation gap $g_t \equiv \pi_t - \pi^T$. Then

$$g_t = (1 - \chi)g_{t-1}.$$

- The state is last period's inflation gap.
- The eigenvalue is $1 - \chi$.
- Stability requires $|1 - \chi| < 1$, satisfied when $0 < \chi \leq 1$.

For $0 < \chi < 1$, the half-life h solves

$$(1 - \chi)^h = \frac{1}{2}, \quad h = \frac{\ln(1/2)}{\ln(1 - \chi)}.$$

Credibility can be read as a speed-of-convergence parameter.

Three benchmark paths

χ	$1 - \chi$	Inflation gap after a one-off shock
1	0	$g_1 = 0$: fully anchored; no inherited gap.
0.5	0.5	$g_t = 0.5^t \bar{\varepsilon}$: half disappears each period; $g_4 = \bar{\varepsilon}/16$.
0	1	$g_t = \bar{\varepsilon}$: the gap never decays on its own.

A four-period forecast can differ by the entire shock even when every regime starts from the same data.

Fully anchored: the shock does not propagate

With $\chi = 1$,

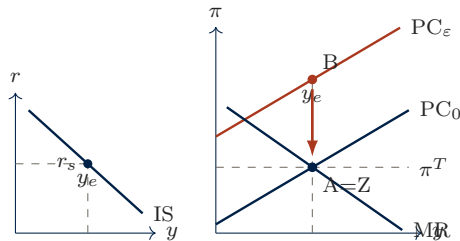
$$\pi_t^e = \pi^T.$$

Therefore

$$\pi_0 = \pi^T + \bar{\varepsilon}, \quad \pi_1 = \pi^T$$

when $x_t = 0$ and the shock is gone.

A=Z: the economy returns to the original equilibrium at potential output y_e .

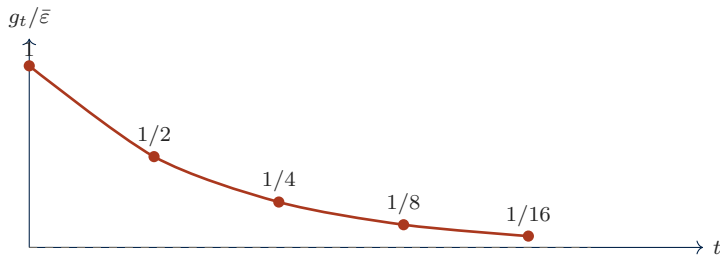


Editable reconstruction of
Carlin–Soskice Figure 4.7(a).

Partially anchored: persistence fades geometrically

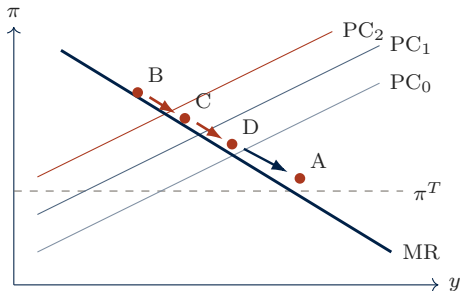
Let $\chi = 0.5$. After the impact period,

$$\pi_t - \pi^T = (0.5)^t \bar{\varepsilon}.$$



With $\chi = 0.5$, credibility removes one half of the inherited inflation gap every period.

Partial anchoring raises the policy rate repeatedly



Editable reconstruction of
Carlin–Soskice Figure 4.7(b).

1. Shock shifts the Phillips curve upward to B .
2. Higher expected inflation keeps it above the original curve.
3. The bank raises r_0 , then r_1 , creating negative gaps.
4. The real rate rises until inflation returns to target at A .

Unanchored: a temporary shock becomes permanent

With $\chi = 0$, expectations are adaptive:

$$\pi_t^e = \pi_{t-1}.$$

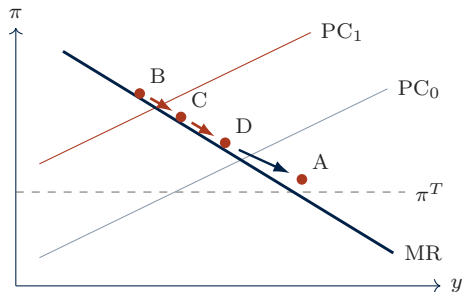
If the output gap remains zero after the shock,

$$\pi_t = \pi_{t-1} \implies \pi_t - \pi^T = \bar{\varepsilon} \quad \forall t \geq 0.$$

- The physical shock is temporary.
- Its **belief effect** is permanent.
- Returning inflation to target now requires a negative output gap.

Persistence can be endogenous: the economy remembers a shock because people use realised inflation as their forecast.

Unanchored expectations create a costly path home



Editable reconstruction of
Carlin–Soskice Figure 4.7(c).

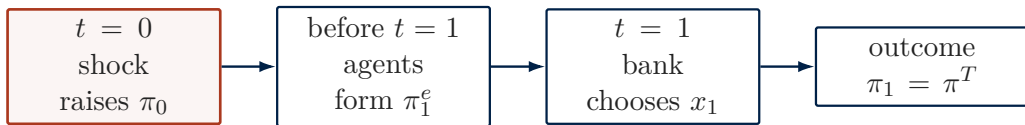
Why the recession?

- Expectations do not fall by themselves.
- Policy must create $x_t < 0$.
- Each negative gap pushes actual inflation below expected inflation.
- Repetition gradually re-anchors the price-setting process.

Align the timing before solving

The central bank wants period-1 inflation back at target after the period-0 shock:

$$\begin{aligned}\pi_0 &= \pi^T + \bar{\varepsilon}, & \varepsilon_1 &= 0, \\ \pi_1^e &= \chi\pi^T + (1 - \chi)\pi_0, \\ \pi_1 = \pi^T &= \pi_1^e + \alpha x_1 + \varepsilon_1.\end{aligned}$$



Solve for the required output gap

Substitute $\pi_0 = \pi^T + \bar{\varepsilon}$ into expectations:

$$\pi_1^e = \chi\pi^T + (1 - \chi)(\pi^T + \bar{\varepsilon}) = \pi^T + (1 - \chi)\bar{\varepsilon}.$$

Impose $\pi_1 = \pi^T$:

$$\pi^T = \pi^T + (1 - \chi)\bar{\varepsilon} + \alpha x_1 \quad \Longrightarrow \quad \boxed{x_1 = -\frac{(1 - \chi)\bar{\varepsilon}}{\alpha}}.$$

The output cost is proportional to the inherited expectation gap $1 - \chi$.

What the output-gap formula means

$$x_1 = -\frac{(1 - \chi)\bar{\varepsilon}}{\alpha}.$$

Larger shock

Higher $\bar{\varepsilon}$ leaves a larger inherited inflation gap.

Weaker anchor

Lower χ makes more of the shock enter next period's beliefs.

Flatter Phillips curve

Lower α requires a larger contraction to change inflation.

Credibility and structural inflation responsiveness jointly determine the real cost of disinflation.

A two-point shock: the cost of weak anchoring

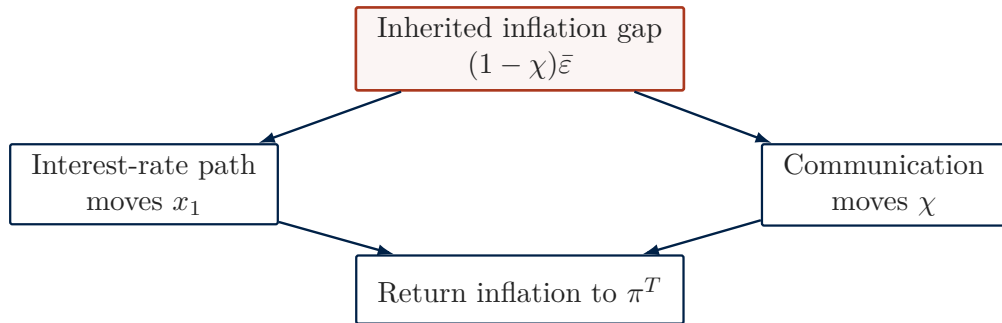
Let $\bar{\varepsilon} = 2$ percentage points and $\alpha = 0.5$.

χ	Required x_1	Interpretation
1	0	Fully anchored: no inherited gap to offset.
0.5	-2	Partial anchoring: a two-percent negative output gap.
0	-4	Unanchored: the entire shock must be reversed through slack.

$$x_1 = -\frac{(1 - \chi) \times 2}{0.5} = -4(1 - \chi).$$

Moving χ from 0 to 1 saves four percentage points of output gap in this example.

Two policy levers, one inflation objective



- **Action channel:** a higher real rate reduces demand and x_1 .
- **Credibility channel:** believable communication raises χ , shrinking the contraction that is needed.

Words are not a substitute for policy; credible words change how much costly policy is required.

Forward guidance enters the yield curve

A stylised n -period yield decomposition is

$$y_t^{(n)} \approx \frac{1}{n} \sum_{j=0}^{n-1} \mathbb{E}_t[i_{t+j}] + TP_t^{(n)}.$$

Expected-rate channel

Guidance changes beliefs about future short rates i_{t+j} , shifting borrowing costs today.

Term-premium channel

Communication can also change uncertainty and risk compensation $TP_t^{(n)}$.

A fall in a long yield does not reveal which component moved without additional evidence.

Why promise low rates after the shock?

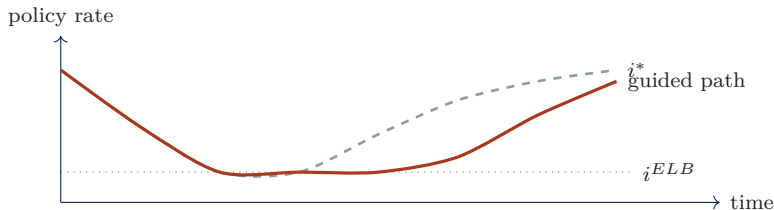
At an effective lower bound,

$$i_t = i^{ELB}.$$

The central bank may influence current conditions by promising

$$\mathbb{E}_t[i_{t+j}] < i_{t+j}^*$$

for some future periods j , where i^* is the rate that would otherwise prevail.



The commitment is powerful only if private agents believe the future deviation from the usual reaction function.

Three forms of forward guidance

Form	Example wording	Trade-off
Qualitative	“Rates are likely to remain low for an extended period.”	Flexible, but imprecise.
Calendar-based	“At least through the middle of next year.”	Clear date, but can become inconsistent with new data.
State-contingent	“Until inflation and employment satisfy stated conditions.”	Ties policy to outcomes, but requires careful threshold design.

Good guidance makes the reaction function easier to forecast without pretending the future is known.

Delphic news or Odyssean commitment?

Delphic guidance

The central bank reveals its forecast or assessment of the economy. Low future rates may therefore signal **bad fundamentals**.

Odyssean guidance

The central bank commits to a future policy path, attempting to bind its later choices even when conditions improve.

The same sentence can depress demand as news or stimulate demand as commitment; interpretation is part of transmission.

Part V

Central bank independence and reputation

Institutional credibility, political pressure, and the reputation mechanism.

Independence protects the instrument, not unchecked power



Marker illustration of mandate, protection, pressure, and review.

1. **Mandate:** parliament and voters set the objective.
2. **Shield:** law protects operational choices.
3. **Scrutiny:** public reporting closes the democratic loop.
4. **Pressure:** politics remains visible but outside the shield.

Independence delegates operational choices, not democratic authority.

Independence without accountability cannot sustain democratic legitimacy.

Two distinctions prevent confusion

Goal vs instrument

Goal independence: authority to choose the objective.

Instrument independence: authority to choose the policy path used to deliver an assigned objective.

De jure vs de facto

De jure: protections written in law or treaty.

De facto: the bank can actually use those protections under political, fiscal, or personnel pressure.

Most modern arrangements combine an externally assigned goal with operational control over instruments.

Why delegate monetary policy?

Problem	Temptation	Role of independence
Inflation bias	Create surprise inflation after wages and prices are set.	Make the ex ante price-stability plan more credible.
Electoral horizons	Delay unpopular tightening until after an election.	Let policy operate over a horizon longer than the political cycle.
Fiscal dominance	Keep rates low or create money to ease public financing.	Separate debt-service pressure from the inflation objective.

Operational insulation is not freedom from democracy: the mandate must remain public, contestable, and reviewable.

What would the evidence look like?

1. **Cross-country association:** more independent central banks are associated with lower average inflation and lower inflation variability.
2. **Leadership transitions:** politically motivated governor changes can be followed by higher realised and expected inflation, lower short rates, and a temporary growth impulse.
3. **Long-horizon anchor:** distant inflation expectations should stay near target when short-run inflation moves.

These claims are complementary: institutional indices measure the rule, transitions expose political pressure, and expectations reveal whether private agents believe the regime.

Two constitutional designs: Fed and ECB

	US Federal Reserve	European Central Bank
Goal	Congress assigns maximum employment and stable prices.	EU treaties assign price stability as the primary objective.
Instrument	FOMC sets rates and other monetary-policy tools.	Governing Council sets the monetary-policy stance and instruments.
Scrutiny	Congressional testimony, Monetary Policy Report, minutes, projections, press conferences, transcripts.	Annual Report, ECON hearings, written questions, monetary-policy accounts, press conferences.

The delegation logic is similar; the constitutional implementation and accountability technologies differ.

The UK design makes accountability visible

Goal	Government remit, renewed annually; 2% CPI target.
Instrument	Monetary Policy Committee sets Bank Rate and related instruments.
Scrutiny	Monetary Policy Report, Treasury Committee testimony, minutes, forecasts, and open letters after large misses.

The bank is independent *in choosing the instrument path*, but the elected government sets the target and Parliament scrutinises performance.

Instrument independence works when accountability is visible, regular, and enforceable.

The Bank of England open-letter rule

Trigger

CPI inflation more than one percentage point above or below the 2% target.

- **Purpose:** explain the miss and the shocks behind it.
- **Path:** set out how inflation will return to target.
- **Tone:** procedural and analytical, not apologetic.

The letter turns a forecast error into a public diagnostic: what happened, what policy is doing, and what risks remain.

Accountability here operates through explanation rather than automatic punishment.

A live accountability document

Bank of England

The Rt Hon Rachel Reeves
Chancellor of the Exchequer
HM Treasury
1 Horse Guards Road
SW1A 2HQ

Andrew Bailey
Governor

18 December 2025

Dear Rachel,

On 17 December 2025, the Office for National Statistics (ONS) published data showing that twelve-month inflation in the Consumer Prices Index (CPI) was 3.2% in November, down from 3.6% in October.

This letter sets out the outlook for inflation and the policy action the Monetary Policy Committee (MPC) is taking to return inflation to the 2% target, along with other considerations required by the MPC's remit when inflation moves away from the 2% target by more than 1 percentage point.

Why has inflation moved away from the 2% target?

Consumer price inflation has fallen significantly over the past few years, staying close to the 2% target for much of last year, in part owing to the restrictiveness of the MPC's monetary policy stance. As the Committee had expected, CPI inflation rose again this year, peaking at 3.8% over the July to September period, before falling to 3.6% in October and 3.2% in November.

Against the backdrop of a continued gradual easing in underlying price pressures in the UK economy, the increase in CPI inflation through to this autumn owed largely to higher food and administered prices, coming alongside a swing from falling to moderately increasing energy prices.

Bank of England | Threadneedle Street, London, EC2R 8AH
+44 (0)20 3441 4444 | www.bankofengland.co.uk



Read the letter for three objects

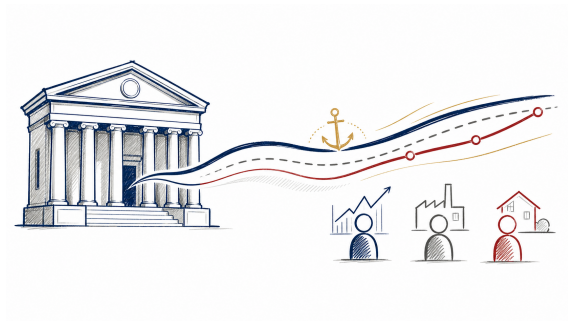
1. attribution of the target miss;
2. the committee's intended policy response;
3. risks around the return path.

Open the December 2025 letter →

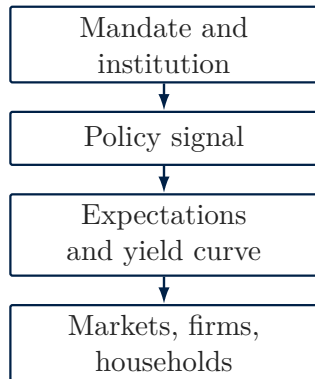
Browse all Bank of England letters →

Bank of England, December 2025 inflation letter.

The forward path runs from mandate to private decisions

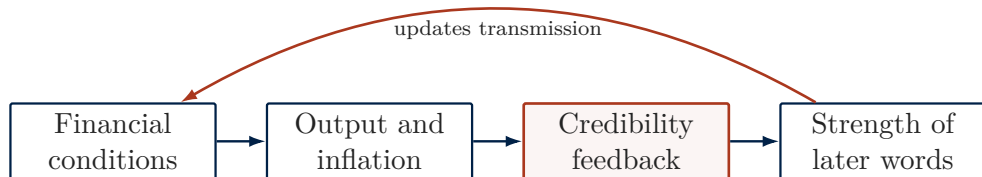


Marker illustration of transmission to markets, firms, and households.



A speech transmits through prices and plans: persuasion alone is not the mechanism.

The governing framework: feedback path



- Outcomes validate or erode the institution behind the message.
- A good record makes later communication more effective.
- Repeated unexplained misses make the same words cheaper.

Credibility is both an input to communication and an output of policy performance.

Communication works when four pieces align

Clear objective	A public nominal anchor: target, mandate, or equivalent destination.
Readable reaction function	Audiences can infer how policy responds to inflation, activity, and risk.
Instruments behind the words	The bank has the capacity and willingness to make the statement actionable.
Institutional credibility	Independence, accountability, and a record consistent with the objective support belief.

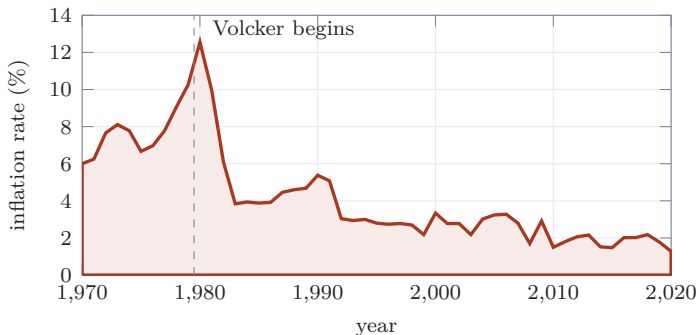
Effective communication is a property of the regime, not merely of the wording.

Five recurrent failure modes

1. **Cheap talk**: words are discounted under weak credibility.
2. **Framework complexity**: the stance is too difficult to decode.
3. **Policy news vs information news**: markets react to the bank's economic assessment rather than its intended policy signal.
4. **Audience heterogeneity**: markets, firms, households, and politicians extract different messages.
5. **False precision**: overconfident paths damage credibility when reality changes.

Diagnose the objective, reaction function, instruments, and credibility before prescribing “more communication.”

Independence can be costly



BLS/FRED CPIAUCSL, December-to-December inflation, 1970–2020.



Images supplied with the source lecture.

Restoring credibility may require tolerating a near-term recession so that a lower-inflation regime becomes believable.

Powell under pressure



Episode

1

Powell said he would not step down as Federal Reserve Chair if asked by President-elect Donald Trump.

[Open clip 1 →](#)



Episode

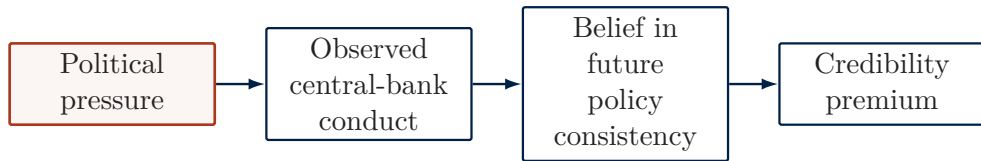
2

Powell said that forcing him out was “not permitted under law” and that he would not resign if asked.

[Open clip 2 →](#)

Two clips, one institutional test: can legal insulation be exercised when political pressure becomes personal?

Practical independence is observable conduct



- Statutes matter because they shape incentives and feasible actions.
- Conduct under stress reveals whether protection is effective in practice.
- Markets update the probability of future political interference.

De facto independence is priced through expectations, term premia, and the cost of restoring an anchor.

Venezuela, 2005: the reserve proposal

Financial Times, 7 July 2005

“Venezuela poised to seize bank’s reserves”—Andy Webb-Vidal in Caracas.

\$5bn

minimum proposed withdrawal

from

\$29bn

international reserves reported in the
article

The government’s case was that reserves were excessive and could finance social programmes.

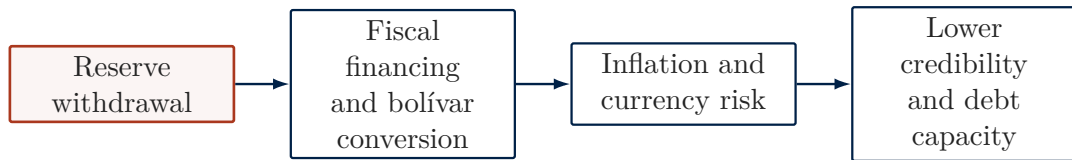
Open the full Financial Times article →

Venezuela: the institutional facts

1. President Hugo Chávez argued that the central bank should belong to “the people” and come under government control.
2. Government-aligned deputies held an effective National Assembly majority and moved the law toward passage.
3. The central bank resisted; its president might resign and the bank could challenge the law’s constitutionality.
4. Analysts nevertheless viewed the court as government-controlled.
5. The dispute sat inside a broader reserve, public-spending, and foreign-debt setting.

Legal independence is weak when every institution capable of enforcing it is itself politically constrained.

Venezuela: trace the mechanism



- José Guerra warned of repeat withdrawals and damage to the bank's institutional reputation.
- Vitali Meschoulam stressed the signal, non-transparent use, current spending, and inflation risk.
- Fewer reserves could weaken foreign-debt service if oil prices fell.

Full article and quotations →

Turkey: when the Fisher equation is read backwards



Source lecture asset.

$$i = r + \pi^e.$$

Textbook equilibrium reading

A credible fall in π^e permits lower i , holding r fixed.

Doctrine inversion

Cut i first and claim inflation follows down—reading an identity as causation from i to π .

The institutional question is whether a central bank can be compelled to act on that doctrine.

Governor dismissals change beliefs

Each dismissal is a public signal about the probability that the bank can sustain an unpopular policy.

$$\underbrace{\Pr(I \mid D)}_{p'} < \underbrace{\Pr(I)}_p.$$

Replacing the person without changing the constraint prevents reputation from accumulating.

Financial Times

<https://www.ft.com/content/19-mar-2021> · [Economics](#) · [Economy](#) · [Europe](#) · [Turkey](#)

Erdogan ousts Turkey central bank governor days after rate ...

19 Mar 2021 — Turkey's president has fired the governor of the central bank just three months into his term and replaced him with an academic who has lobbied for lower ... [Read more](#)

Financial Times

<https://www.ft.com/content/06-nov-2020> · [Economics](#) · [Economy](#) · [Europe](#) · [Turkey](#)

Erdogan ousts head of Turkish central bank after lira plunge

6 Nov 2020 — Turkey's president Recep Tayyip Erdogan has fired the governor of the country's central bank and replaced him with a former finance minister ... [Read more](#)

Financial Times

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Erdogan sacks Turkish central bank governor

6 Jul 2019 — Recep Tayyip Erdogan has sacked Turkey's central bank governor, raising fresh concerns about the independence of the rate-setter at a ... [Read more](#)

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Erdogan fires deputy governor of Turkey's central bank

25 May 2021 — In March, Erdogan fired Halil Aghal, the third central bank governor in less than two years. The market-friendly Aghal was replaced by Sahap ... [Read more](#)

Financial Times

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Recep Tayyip Erdogan's authority to fire Turkey's central ...

4 Jun 2024 — Turkey's constitutional court has struck down part of a decree signed by President Recep Tayyip Erdogan that authorised him to sack central ... [Read more](#)

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Turkish lira hits record low after Erdogan sacks central ...

13 Oct 2021 — The Turkish lira hit a record low overnight after President Recep Tayyip Erdogan ordered a new round of dismissals at the country's central bank. [Read more](#)

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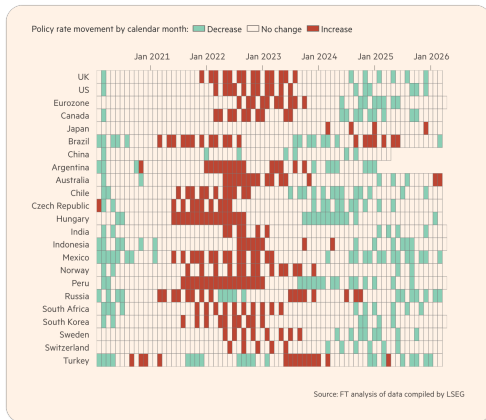
<https://www.ft.com/content/23-mar-2021> · [Economics](#) · [Economy](#) · [Europe](#) · [Turkey](#)

Eviction of central bank boss shakes investor confidence in ...

23 Mar 2021 — Recep Tayyip Erdogan's abrupt dismissal of Turkey's central bank chief has ended investor confidence in the country's economic leadership ... [Read more](#)

Governor-dismissal sequence supplied with the source lecture.

Turkey became the policy-rate outlier

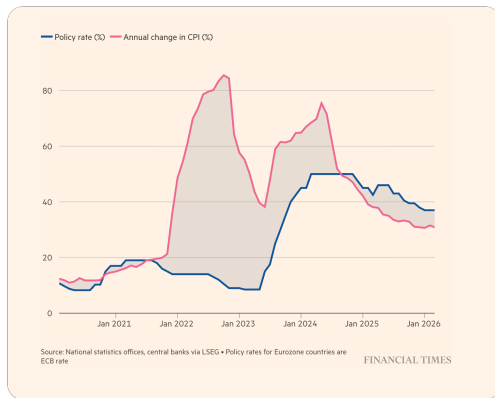


Cross-country policy-rate comparison supplied with the source lecture.

Read the comparison

- Peers tightened as global inflation rose.
- Turkey cut rates instead.
- The reversal was not just a different shock assessment; it reflected a different doctrine and institutional constraint.

The orthodox reversal, 2020–26



Turkey policy rate and CPI graphic supplied with the source lecture.

A new policy path can begin immediately; the credibility stock cannot.

- The 2023 reversal brought large rate increases.
- Communication returned to an orthodox inflation-control frame.
- Disinflation was slow; inflation remained above 30% in early 2026 in the supplied chart.

Why disinflation can remain slow

$$\pi_t - \pi^T = (1 - \chi)^t \bar{\varepsilon}$$

If χ is near zero, past inflation decays only slowly from expectations.

$$|x| \propto \frac{1}{\alpha}.$$

A flatter Phillips curve raises the output cost.

The rate can be raised in one meeting; χ rises only after a sequence of consistent actions.

- Markets price reversal risk into long-horizon π^e .
- Weak belief in the rule blunts interest-rate transmission.
- Wage and price setters wait for repeated evidence.
- Fiscal signals can contradict monetary restraint.

Policy repair is not institutional repair



Missing safeguards keep reversal risk alive: statutory protection, dismissal rules, and fiscal separation are still absent.

- A strong governor can conduct good policy.
- If the rules that allowed earlier reversals remain unchanged, audiences rationally attach weight to another reversal.

Credibility is lost quickly and rebuilt slowly.

Once inflation escapes, policy faces a coordination problem



Marker illustration of the inflation-control metaphor.

The cat is elevated inflation: visible, costly to leave high, and difficult to bring down safely.

- **Public:** waits and bears uncertainty.
- **Officials:** debate who should act and how fast.
- **Ladder:** the available tool is too short for the task.

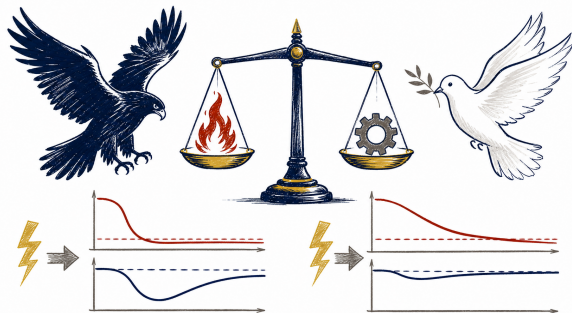
Delay makes restoring inflation control harder and more costly.

Part VI

Hawks and doves

Inflation aversion, MR slopes, and how communication reveals preferences.

Hawks and doves choose different paths after the same shock



Marker illustration: inflation path above, output/employment path below.

Hawk: higher β

Faster inflation stabilisation, but a deeper output and employment trough.

Dove: lower β

More gradual inflation stabilisation, with a shallower output and employment loss.

Hawk and dove are shorthand for the relative weight placed on inflation stabilisation in the loss function.

The deeper object is the loss function

$$L_t = (y_t - y_e)^2 + \beta(\pi_t - \pi^T)^2, \quad \beta > 0.$$

Low β : more dovish

Inflation deviations receive relatively little weight; the policymaker accepts more overshoot to protect activity.

High β : more hawkish

Inflation deviations receive relatively more weight; the policymaker accepts a larger output sacrifice to restore target.

Hawk and dove are relative descriptions: β locates a policymaker on a continuous trade-off, not in two biological categories.

The reaction function reveals the stance

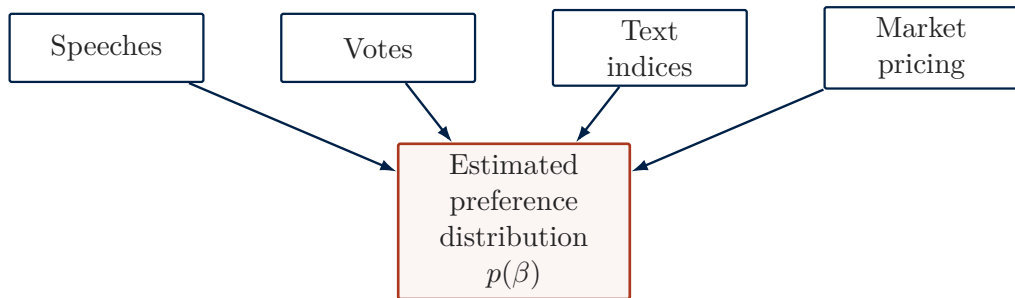
$$i_t = r^* + \pi_t + \phi_\pi(\pi_t - \pi^T) + \phi_x x_t.$$

ϕ_π is the policy-rate response to a one-point inflation gap. A larger value makes inflation stabilisation more forceful.

ϕ_x is the response to a one-point output gap. A larger value gives activity more direct weight in the instrument rule.

A hawkish stance typically appears as a larger response to inflation relative to activity.

Markets must infer the committee's β



- The loss-function weight is not published as an observable parameter.
- Communication reveals how members rank inflation risk against real activity risk.
- Prices aggregate beliefs about both the median member and the committee's internal dispersion.

Hawk/dove indices are empirical attempts to recover the cross-section of β .

Derive the monetary-rule curve

Choose period-1 output to minimise loss:

$$\min_{y_1} (y_1 - y_e)^2 + \beta(\pi_1 - \pi^T)^2$$

subject to

$$\pi_1 = \pi^e + \alpha(y_1 - y_e).$$

Substituting the Phillips curve into the objective gives

$$L(y_1) = (y_1 - y_e)^2 + \beta[\pi^e + \alpha(y_1 - y_e) - \pi^T]^2.$$

The Phillips curve is the feasible set; β selects a point on it.

The first-order condition

Differentiate the substituted objective:

$$\frac{\partial L}{\partial y_1} = 2(y_1 - y_e) + 2\alpha\beta(\pi_1 - \pi^T) = 0.$$

Therefore,

$$y_1 - y_e = -\alpha\beta(\pi_1 - \pi^T).$$

- An inflation overshoot requires a negative output gap.
- The tolerated combination depends jointly on Phillips-curve slope α and preference weight β .

The MR curve is the set of inflation–output combinations that satisfy the policy-maker’s first-order condition.

Preference and structure both shape MR

Rearranging the first-order condition:

$$\left. \frac{d\pi}{dy} \right|_{\text{MR}} = -\frac{1}{\alpha\beta}.$$

Preference effect

Higher β flattens MR: a hawk accepts a larger output movement for a smaller inflation deviation.

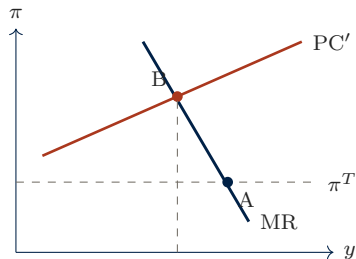
Structural effect

Higher α also flattens MR at fixed β : inflation responds more to each unit of output gap.

A flatter estimated MR curve need not mean a more hawkish policymaker unless the Phillips-curve slope is held fixed.

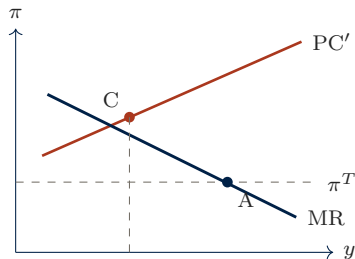
One shock, two regimes

Dovish: low β , steep MR



Small output sacrifice; large inflation overshoot.

Hawkish: high β , flatter MR



Larger output sacrifice; smaller inflation overshoot.

The same cost-push shock produces different outcomes because the two banks move along different MR curves.

Inflation versus unemployment



Clickable still; video preserved from the source lecture.

Teaching question

Why does reducing an inflation overshoot normally require weaker activity and temporarily higher unemployment?

Open the video on
YouTube →

Use the clip to connect the Phillips curve, the MR choice, and the human meaning of the output gap.

Closed-form response to a cost-push shock

With a one-off shock s_t , the Phillips curve and MR condition imply

$$\pi_t - \pi^T = \frac{s_t}{1 + \alpha^2 \beta}.$$

Higher β shrinks the inflation gap.

$$y_t - y_e = -\frac{\alpha \beta}{1 + \alpha^2 \beta} s_t.$$

Higher β enlarges the negative output gap.

The hawk–dove distinction is a comparative-static result: β reallocates the shock between inflation and output.

From output sacrifice to unemployment

Okun's law maps the output gap into labour-market slack:

$$u_t - u^n \approx -\kappa(y_t - y_e), \quad \kappa > 0.$$

The output response contains the key ratio

$$\frac{\alpha\beta}{1 + \alpha^2\beta}.$$

- Higher β raises the unemployment cost accepted for lower inflation.
- A welfare-optimal β depends on how anchored expectations are.
- It also depends on shock persistence and the structure captured by α and κ .

No hawk–dove ranking is welfare-free: the preferred trade-off is conditional on the regime and the shock.

ECB Council: dove to hawk



Practitioner ranking supplied with the source lecture; date/provider to verify.

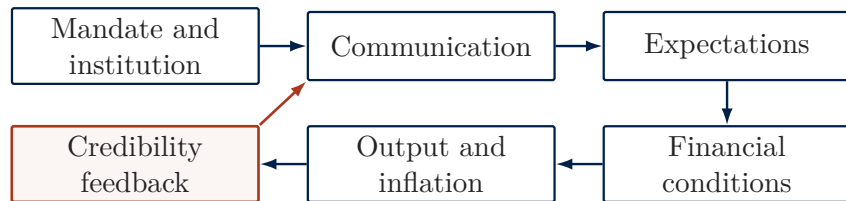
Model reading

- Dovish end: lower inferred β , steeper MR.
- Hawkish end: higher inferred β , flatter MR.
- Executive Board members often carry the centrist line in the supplied ranking.

Governing Council members are not national delegates: legally, they act for euro-area price stability.

National experience shapes priors and rhetoric; hawk and dove remain regime-conditional descriptions.

The whole system



Anchoring

Which shock became persistent?

Independence

Which institution made the message believable?

Hawk vs dove

Which preference changed the response?

Every case changes at least one link—and often the credibility stock.

Words, anchors, credibility

1. What expectation changed?
2. Which price or quantity transmitted it?
3. What made the message credible?

Communication is policy when beliefs change behaviour.

Sources: core theory

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- Eggertsson, G. and Woodford, M. (2003), “The Zero Bound on Interest Rates and Optimal Monetary Policy,” *Brookings Papers*. [Link](#)
- Kydland, F. and Prescott, E. (1977); Barro, R. and Gordon, D. (1983); Sargent, T. and Wallace, N. (1981).
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Equations are re-typeset in native LaTeX from the source lecture and cited frameworks.

Sources: institutions and speeches

- Bernanke, B. (2007), “Inflation Expectations and Inflation Forecasting.” **Federal Reserve**
- Bernanke, B. (2004), “Fedspeak.” **Federal Reserve**
- Federal Reserve FOMC statements and calendars. **Archive**
- European Central Bank, objective and Governing Council. **Objective Council**
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- Haldane and Schembri speeches are preserved from the supplied lecture bibliography; confirm edition-specific URLs before publication.

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Sources: data, media, and cases

- U.S. CPI: BLS via FRED CPIAUCSL. **Data**
- U.S. five-year, five-year forward inflation expectation rate. **Data**
- Webb-Vidal, A. (2005), “Venezuela poised to seize bank’s reserves,” *Financial Times*, 7 July. **Article**
- Powell independence clips: **1 2**; inflation–unemployment clip: **3**.
- Turkey graphics, Volcker photographs, and the ECB ranking are supplied course assets; verify provider, date, and licence.
- The political-transition result is retained as supplied; identify the underlying IMF study during the content audit.

External video stills are local offline thumbnails linked to the original videos.

Sources: reconstruction note

- The design system follows the supplied Deep Learning Day 1 reference.
- Marker illustrations are original 2026 assets: communication, anchoring, risk, independence, hawk–dove, and cat/inflation.
- Technical diagrams are editable TikZ/PGFPlots graphics.
- Equations are re-typeset rather than captured as images.
- Source images remain distinct and carry visible source lines.
- The HTML lecture is the content authority for this pass; citations marked “verify” await the scholarly-source pass.

Conversion principle: preserve every teaching idea, then improve content only in a separately reviewed pass.