Time Inconsistency and Credibility in Monetary Policy

Adapted by Dr Camilo Calderon

Table of contents

1 Introduction and motivation **2**
1.1 Learning objectives . . . 2

2 The benchmark model: preferences, expectations, and supply **3**
2.1 Assumptions and notation . . . 3

3 The one-shot game: inflation bias and the temptation to cheat **5**
3.1 Sequence of moves and time consistency . . . 5
3.2 The temptation to deviate . . . 6
3.3 The central bank reaction function . . . 6
3.4 Comparing outcomes: four scenarios . . . 8

4 Reputation and repeated interaction **9**
4.1 Infinite repetition and trigger strategies . . . 10
4.2 Multiple equilibria and self-fulfilling expectations . . . 10
4.3 Modern credibility in practice . . . 10

5 Commitment devices and policy frameworks **11**
5.1 Rules rather than discretion . . . 11
5.2 Delegation and central bank independence . . . 11
5.2.1 The Volcker disinflation (US credibility regime shift) . . . 12
5.2.2 UK operational independence . . . 12
5.3 Contracts and targets . . . 12
5.3.1 New Zealand's accountability framework . . . 13
5.4 Exchange-rate pegs as credibility anchors . . . 13
5.4.1 Why pegs fail . . . 13
5.4.2 The UK ERM experience . . . 13

6 Evidence and case studies: credibility in modern practice **14**
6.1 Credibility as a policy instrument: communication and commitment 14
6.2 Anchoring and inflation persistence 14

7 End-of-chapter summary **14**

8 Problem questions **15**
8.1 References 15

1 Introduction and motivation

The **time inconsistency problem** arises when a policy that is optimal when announced ("ex ante") is no longer optimal when it is time to implement it ("ex post"), because incentives change once private agents have acted on the announcement (Kydland and Prescott, 1977).

A simple non-monetary illustration is **building on a flood plain**. A government can credibly announce "no disaster relief" to deter risky construction. But if people build anyway and a flood occurs, political pressure makes it optimal to provide relief, so the original announcement is not carried out. The announcement was "optimal" at the start, but not credible when the time comes to act—so it fails to shape private behavior in the intended way.

In monetary economics, time inconsistency is central because modern monetary policy works heavily through **expectations**. If the public believes a low-inflation plan, expected inflation falls; but once expectations are low, a policymaker who cares about output/employment may be tempted to create a surprise inflation to push output temporarily above potential. Anticipating this, rational agents discount (or ignore) overly ambitious low-inflation announcements, producing an equilibrium with **higher inflation but no sustained gain in output**—the classic **inflation bias** of discretion (Barro and Gordon, 1983). In Barro and Gordon's formulation, discretion creates a systematic temptation to inflate once expectations are set, but because private agents understand that incentive, the long-run outcome is simply higher expected and actual inflation rather than permanently higher output.

This chapter develops the material on credibility and reputation in monetary policy covered in Lewis and Mizen (Sections 10.3–10.6), combining the classic models with evidence from modern central banks and policy institutions.

1.1 Learning objectives

By the end of this chapter, you should be able to:

1) Explain why discretion can generate inflation bias even when the policymaker dislikes inflation (Kydland and Prescott, 1977; Barro and Gordon, 1983).

2) Derive the **time-consistent** inflation rate in the benchmark model and interpret the roles of policy preferences and the Phillips/Lucas supply slope (Rogoff, 1985).
3) Show how **reputation** in repeated interaction can support low inflation as an equilibrium—and why multiple equilibria (trust vs distrust) can exist (Barro and Gordon, 1983; Svensson, 1999).
4) Evaluate institutional "commitment devices" in practice: **rules**, **central bank independence**, **conservative delegation**, **contracts/targets**, and **exchange-rate pegs** (Rogoff, 1985; Taylor, 1993; Walsh, 1995).

2 The benchmark model: preferences, expectations, and supply

The benchmark model is a streamlined time inconsistency framework designed to isolate credibility. It uses standard New Classical assumptions: the central bank has a quadratic loss function, which is a simple way to say that bigger inflation or output mistakes are more costly than small ones; private agents form rational expectations, meaning they use available information to forecast policy; and output moves away from potential only when actual inflation turns out differently from what people had expected.

2.1 Assumptions and notation

Let inflation be π, expected inflation formed last period be $E_{-1}\pi$, potential output be Y^*, and the policymaker's desired output target be Y^T. The policymaker's **political bias** is $\lambda = Y^T - Y^*$. A positive λ means the policymaker wants output above potential.

It is worth slowing down over the notation, because the rest of the chapter repeatedly uses the same symbols:

- π: actual inflation chosen by the policymaker
- $E_{-1}\pi$: inflation expected by the private sector one period earlier
- Y: actual output
- Y^*: potential or natural output
- Y^T: the policymaker's preferred output target
- $\lambda = Y^T - Y^*$: the gap between the policymaker's preferred output and feasible potential output
- a: weight on inflation stabilization in the loss function
- b: weight on output stabilization in the loss function
- κ: slope parameter linking surprise inflation to output

The economic tension is already visible in those definitions: if $\lambda > 0$, the policymaker would like output to be above the economy's natural level, but rational expectations make that impossible to sustain systematically.

The central bank's quadratic loss is:

$$L = (a/2)\pi^2 + (b/2)(Y - Y^T)^2,$$

with $a > 0$ capturing inflation aversion and $b > 0$ capturing aversion to output deviations from target. The ratio b/a is a useful "dove/hawk" index: higher b/a corresponds to more dovish (output-focused), lower b/a more hawkish (inflation-focused). The $1/2$ terms are included only to simplify differentiation, since they cancel the factor of 2 when taking first-order conditions.

In words, the central bank dislikes two things: inflation being too high and output being away from its preferred level. The equation simply adds those two costs together.

Economic interpretation: the parameters a and b tell us how much the policymaker cares about each objective. If a rises, the bank becomes more inflation-averse. If b rises, it becomes more willing to tolerate inflation in order to stabilise output.

Read the loss function term by term:

- $(a/2)\pi^2$ says inflation is costly in itself, and the cost rises more than proportionally as inflation gets larger
- $(b/2)(Y - Y^T)^2$ says output away from the policymaker's preferred target is also costly, whether output is above or below that target

Quadratic loss is not meant to say policymakers literally solve this exact formula. It is a modeling device that makes the trade-off transparent and gives a clean first-order condition.

Output is linked to surprise inflation using a Lucas supply relation:

$$Y - Y^* = \kappa(\pi - E_{-1}\pi),$$

where $\kappa > 0$ measures how strongly output responds to an inflation surprise. Higher κ means larger short-run output response; lower κ means surprises translate mostly into prices.

In words, output only moves away from potential when actual inflation differs from what people had already expected. Expected inflation by itself does not create a boom.

Economic interpretation: this is the core New Classical discipline in the model. Only unexpected inflation affects real activity, so a central bank cannot keep output above potential just by choosing high inflation every period.

This equation is the short-run "surprise" mechanism. It says:

- if actual inflation equals expected inflation, then $\pi - E_{-1}\pi = 0$ and output stays at potential
- if actual inflation exceeds expected inflation, firms and workers are temporarily surprised, so output rises above Y^*
- if actual inflation is below expected inflation, output falls below Y^*

To see where this comes from, start from the Lucas supply relation

$$Y - Y^* = \kappa(\pi - E_{-1}\pi),$$

and use $\lambda = Y^T - Y^*$. Rearranging gives

$$Y - Y^T = (Y - Y^*) - (Y^T - Y^*) = \kappa(\pi - E_{-1}\pi) - \lambda.$$

Substituting this expression for $Y - Y^T$ into the loss function yields:

$$L = (a/2)\pi^2 + (b/2)(\kappa(\pi - E_{-1}\pi) - \lambda)^2.$$

This substitution is the key simplification in the model. It rewrites the loss function entirely in terms of inflation choices and inflation expectations. Once we do that, the policymaker's optimization problem becomes: choose π, taking $E_{-1}\pi$ as given, knowing that surprise inflation can temporarily move output.

In words, the central bank is now choosing inflation while knowing that output consequences come through the surprise term $\pi - E_{-1}\pi$.

Economic interpretation: after substitution, the model becomes an optimization problem in one control variable, π. That is what makes the reaction function derivation possible.

This expression makes the tension explicit: inflation is costly, but if $\lambda > 0$ the policymaker has an incentive to generate surprise inflation to move output toward its preferred target.

3 The one-shot game: inflation bias and the temptation to cheat

3.1 Sequence of moves and time consistency

The one-shot sequence is:

1) At time -1, the central bank announces an intended inflation rate.

2) Still at time -1, private agents form $E_{-1}\pi$, using rational expectations.

3) At time 0, the central bank chooses actual inflation π.

4) A **time-consistent** policy satisfies $\pi = E_{-1}\pi$.

Under rational expectations, anything systematically implemented is anticipated, so "systematic surprises" cannot persist. This connects directly to the New Classical policy-ineffectiveness insight: predictable policy does not move real output; only unanticipated components can.

3.2 The temptation to deviate

If the central bank accepts that output is at Y^* absent shocks, it cannot systematically keep Y above Y^*. In that case, it would like to minimize inflation costs and choose $\pi = 0$. This makes "zero inflation" an ex ante optimal announcement.

But if the public believed $E_{-1}\pi = 0$, the central bank faces an incentive to create a positive π once expectations are set, because surprise inflation temporarily closes the output gap. This is the core time inconsistency: once expectations are set, surprise inflation has short-run benefits, so the policymaker is tempted to deviate (Kydland and Prescott, 1977; Barro and Gordon, 1983).

3.3 The central bank reaction function

Holding $E_{-1}\pi$ fixed, the central bank minimizes the loss. This equation is obtained by differentiating the substituted loss function with respect to π and then solving for π. The first-order condition implies the best response (reaction function):

$$\pi = \frac{b\kappa\lambda}{a + b\kappa^2} + \frac{b\kappa^2}{a + b\kappa^2} E_{-1}\pi.$$

In words, actual inflation is chosen as a weighted combination of two forces: the desire to push output above potential and the need to accommodate already-embedded inflation expectations.

Because this is the most important derivation in the chapter, it helps to show the algebra explicitly. The steps below show how the first-order condition is derived from the loss function and then rearranged to isolate π.

Start from the substituted loss:

$$L = (a/2)\pi^2 + (b/2)(\kappa(\pi - E_{-1}\pi) - \lambda)^2.$$

Treat expected inflation $E_{-1}\pi$ as fixed from the policymaker's point of view at time 0. Differentiate with respect to actual inflation π:

$$\frac{\partial L}{\partial \pi} = a\pi + b(\kappa(\pi - E_{-1}\pi) - \lambda)\kappa.$$

Set the derivative equal to zero for the optimum:

$$a\pi + b\kappa(\kappa(\pi - E_{-1}\pi) - \lambda) = 0.$$

Now expand the bracket:

$$a\pi + b\kappa^2\pi - b\kappa^2 E_{-1}\pi - b\kappa\lambda = 0.$$

Collect the terms in π on the left:

$$(a + b\kappa^2)\pi = b\kappa\lambda + b\kappa^2 E_{-1}\pi.$$

Finally divide through by $a + b\kappa^2$:

$$\pi = \frac{b\kappa\lambda}{a + b\kappa^2} + \frac{b\kappa^2}{a + b\kappa^2} E_{-1}\pi.$$

This is called the **reaction function** because it tells us how the central bank reacts to already-formed expectations. It has two parts:

- $\frac{b\kappa\lambda}{a+b\kappa^2}$: the inflationary bias coming from the policymaker's desire to push output above potential
- $\frac{b\kappa^2}{a+b\kappa^2} E_{-1}\pi$: the part of actual inflation that passively accommodates what the public already expects

Economic interpretation: the first term is the "temptation" term, while the second is the "inheritance from expectations" term. Together they show why discretion is dangerous: even before any cheating occurs, the structure of incentives pushes inflation upward.

The public's rational expectations condition is $E_{-1}\pi = \pi$. Substituting yields the **time-consistent inflation rate**:

$$\pi^e = \pi = \frac{b\kappa\lambda}{a}.$$

In words, once people understand the policymaker's incentives, expected inflation rises until no further surprise is possible. The only thing left is positive equilibrium inflation with no lasting output gain.

That last step is simple but easy to miss. Replace $E_{-1}\pi$ by π in the reaction function:

$$\pi = \frac{b\kappa\lambda}{a + b\kappa^2} + \frac{b\kappa^2}{a + b\kappa^2}\pi.$$

Move the expectations term to the left:

$$\pi - \frac{b\kappa^2}{a + b\kappa^2}\pi = \frac{b\kappa\lambda}{a + b\kappa^2}.$$

Factor out π:

$$\pi \left(1 - \frac{b\kappa^2}{a + b\kappa^2}\right) = \frac{b\kappa\lambda}{a + b\kappa^2}.$$

The bracket simplifies to $a/(a + b\kappa^2)$, so multiplying both sides by $(a + b\kappa^2)/a$ gives:

$$\pi = \frac{b\kappa\lambda}{a}.$$

This is the central inflation-bias result: under discretion, equilibrium inflation is positive whenever the policymaker persistently wants output above potential.

Economic interpretation: inflation bias is larger when the policymaker wants a bigger output expansion (λ), cares more about output relative to inflation (b/a), or can exploit a stronger surprise-inflation channel (κ).

Interpretation (inflation bias). If $\lambda > 0$ (the policymaker wants output above potential), equilibrium inflation is positive even though output ends up at Y^* on average because surprises cannot be systematic under rational expectations. The bias grows when the policymaker is more dovish (higher b/a), when the surprise inflation channel is stronger (higher κ), or when the political bias λ is larger.

3.4 Comparing outcomes: four scenarios

The benchmark compares four outcomes using stylized loss levels:

1) **Honest commitment**: The central bank announces $\pi = 0$, the public believes it, and the bank actually delivers $\pi = 0$. So expected and actual inflation are both zero. Because there is no inflation surprise, output remains at Y^*. The only remaining problem is that the policymaker still prefers $Y^T = Y^* + \lambda$, so there is an output-target gap of size λ. Loss is therefore
$$L^* = (b/2)\lambda^2.$$

2) **Discretionary equilibrium**: The public understands the bank's incentive to create surprise inflation, so it expects the time-consistent inflation rate
$$E_{-1}\pi = \pi = \frac{b\kappa\lambda}{a}.$$
Because actual inflation equals expected inflation, there is again no surprise and output remains at Y^*. The difference from honest commitment is that inflation is now positive, so the bank suffers both the inflation cost and the same output-target gap as before. Loss is
$$L^e = (b/2)\lambda^2(1 + (b\kappa^2)/a).$$

3) **Cheating**: Suppose the public expects $\pi = 0$, but after expectations are fixed the central bank re-optimizes and chooses positive inflation. Now actual inflation exceeds expected inflation, so output temporarily rises above Y^*. This reduces the gap between actual output and the policymaker's preferred target Y^T, which is why cheating is tempting. The cheating loss is
$$L^c = (a/(a + b\kappa^2))(b/2)\lambda^2,$$
and this is lower than L^*, so once low expectations are in place the policymaker would like to deviate.

4) **Purist strategy**: The public expects the discretionary inflation rate, but the central bank unexpectedly sets $\pi = 0$. Now actual inflation is below expected inflation, so output falls below Y^*. Since the policymaker already wanted output above Y^*, this makes the output-target gap even worse. This is the worst case:

$$L^p = (b/2)\lambda^2(1 + (b\kappa^2)/a)^2 > L^e.$$

Key insight: sudden disinflation without prior credibility can create a recession before credibility has time to improve expectations.

It helps to summarize the four cases in plain language:

- honest commitment: low expected inflation, low actual inflation, no recession, but the policymaker still cannot achieve Y^T
- discretionary equilibrium: high expected inflation, high actual inflation, no output gain, so the economy gets inflation without benefit
- cheating: low expected inflation, higher actual inflation, temporary boom, which explains the temptation to cheat
- purist strategy: high expected inflation, low actual inflation, temporary recession, which explains why disinflation is costly without credibility

The ranking is easier to remember if you tie each case to its economic logic:

- $L^c < L^*$: cheating is tempting because once expectations are fixed, surprise inflation gives a temporary output gain
- $L^e > L^*$: discretionary equilibrium is worse than honest commitment because inflation is higher but output is not higher on average
- $L^p > L^e$: a "tough" anti-inflation move without credibility can be worse than ordinary discretion, because the public expects inflation while the policymaker unexpectedly delivers none, pushing output below potential

So the model's practical message is not just "credibility is nice to have." It is that credibility changes the short-run output cost of disinflation.

4 Reputation and repeated interaction

Real-world monetary policy is repeated: the private sector observes past decisions, and central banks care about future outcomes. This motivates **reputation** models where credibility can be sustained through repeated play.

4.1 Infinite repetition and trigger strategies

In a repeated-game setting, the central bank's loss is:

$$L_{\text{total}} = L_0 + \beta L_1 + \beta^2 L_2 + ...,$$

where $0 < \beta < 1$ is a discount factor. Higher β means the central bank puts more weight on future losses.

In words, total loss is the present value of current and future policy mistakes. The farther into the future a loss occurs, the less weight it receives because it is multiplied by a higher power of β.

Interpret β as patience. A policymaker with a high β cares a lot about future reputation and future inflation outcomes, so cheating today is less attractive. A policymaker with a low β is more short-termist, so the one-period gain from surprise inflation looms larger.

A **trigger strategy** supports credibility: the public believes the central bank's announcement unless it cheats; if it cheats, the public distrusts it forever and reverts to expecting the time-consistent rate. Cheating yields a one-time gain but permanently higher future losses because expectations become unanchored. The central bank honors its promise when the discounted future cost exceeds today's gain—i.e., when β is "high enough."

This logic formalizes why credibility depends on institutions that make policymakers patient and forward-looking: longer horizons, reputational concerns, and governance arrangements that reduce short-term political pressures all raise the effective discount factor.

4.2 Multiple equilibria and self-fulfilling expectations

A major insight is that repeated games can have **multiple equilibria**. If the public starts out distrustful, it may coordinate on expecting the high-inflation (time-consistent) outcome from the outset, trapping the central bank in a high-inflation equilibrium. If the public starts trusting and the bank validates that trust, a low-inflation equilibrium is sustained. These equilibria can be **self-fulfilling**.

This connects to modern work on transparency and credibility: when private agents infer central bank preferences from outcomes, transparency can strengthen discipline by making reputational consequences more sensitive to deviations (Svensson, 1999).

4.3 Modern credibility in practice

The same credibility logic appears in modern central banking:

- The **Federal Reserve** emphasizes that well-anchored long-run inflation expectations "foster price stability" and improve policy trade-offs, and commits to act "forcefully" to keep expectations anchored.
- The **European Central Bank** strategy statement says a clear 2% symmetric target provides an anchor and that near the effective lower bound it may require "especially forceful or persistent" action to avoid disinflation becoming entrenched.

These are institutional expressions of a New Classical lesson: expectations are not passive; credibility is part of the transmission mechanism.

5 Commitment devices and policy frameworks

Time inconsistency motivates a family of "commitment devices." Modern practice provides clear examples and trade-offs.

5.1 Rules rather than discretion

A "rule" is a systematic, predictable mapping from observed conditions to policy actions. Rules can raise credibility by reducing scope for opportunistic surprise inflation.

The **Taylor rule** is an instrument rule associated with John Taylor: $i_t = \alpha(\pi_{t-1} - \pi^T) + \delta(Y_{t-1} - Y^T)$. Taylor emphasizes that useful rules adjust the policy rate in response to inflation and real activity, but practical policymaking cannot follow any formula mechanically; rules should discipline and inform decisions (Taylor, 1993).

Why rules help credibility: if the public believes the rule, it anchors expectations, reducing the incentive for surprise inflation and lowering the inflation bias.

Why strict rules can backfire: a key tension under adverse supply shocks (e.g., the 1973 oil shock) is between inflation and output stabilization. Inflation can rise while output falls, forcing a painful trade-off. A mechanical rule cannot navigate this. This is why most inflation targeting regimes are "flexible" rather than strict.

5.2 Delegation and central bank independence

A second commitment device is **delegation**: appoint a decision-maker who is more inflation-averse than society as a whole. Rogoff's classic result shows that appointing a "conservative" central banker can reduce average inflation (the inflation bias) but may increase output variability when supply shocks are large—so the optimal degree of conservatism is finite (Rogoff, 1985).

This supports the institutional case for **central bank independence**: improving credibility by insulating monetary policy from short-term political incentives to engineer booms.

5.2.1 The Volcker disinflation (US credibility regime shift)

A well-known credibility episode is the "Volcker disinflation." The Federal Reserve Board documents that President Carter appointed Paul Volcker in 1979 as an inflation "hawk," when inflation had reached about 9% by the GNP deflator. Volcker announced a decisive policy shift and oversaw sharp increases in the federal funds rate, aiming to break inflation expectations (Federal Reserve Board, 2007).

5.2.2 UK operational independence

In the UK, the institutional credibility device is operational independence for monetary policy, granted in 1997 and codified by the Bank of England Act 1998. The Bank received responsibility for setting the policy rate to achieve an inflation target set by government, with structured accountability via the Monetary Policy Committee (Bank of England, 2017).

The UK's annual remit letters state that statutory objectives are to maintain price stability and support the government's economic objectives. The inflation target is currently 2% CPI, explicitly forward-looking to anchor expectations (HM Treasury, 2021; HM Treasury, 2023).

5.3 Contracts and targets

The **performance-related pay** approach ties central bank incentives to inflation outcomes. The modern academic counterpart is the principal-agent "central banker contract" literature, where optimal contracts can eliminate inflation bias by tying payoff to realized inflation (Walsh, 1995).

A stylized version is:

$$L_t = (a/2)(\pi_t - \pi^T)^2 + (b/2)(Y_t - Y^T)^2 - B \cdot \mathbb{1}(\pi_t \leq \pi^T) + F \cdot \mathbb{1}(\pi_t > \pi^T),$$

where $B > 0$ is a bonus and $F > 0$ is a fine.

In words, the policymaker still dislikes inflation misses and output misses, but now also faces an institutional reward for meeting the inflation target and a penalty for overshooting it.

Economic interpretation: the contract changes incentives rather than changing the structure of the economy. It tries to make inflation overshooting privately costly to the policymaker, so the temptation to inflate is reduced.

The indicator function $\mathbb{1}(\cdot)$ equals 1 when the condition inside it is true and 0 otherwise. So this contract says:

- the policymaker gets a reward B for keeping inflation at or below target
- the policymaker incurs a penalty F when inflation exceeds target

This is not meant as a literal recommendation for paying central bankers bonuses. It is a compact way of modeling institutional incentives that make above-target inflation more costly to the policymaker.

5.3.1 New Zealand's accountability framework

The **Reserve Bank of New Zealand** Act 1989 establishes price stability as the primary monetary policy objective and sets out policy targets agreements between the Minister and the Governor. Crucially for credibility, the Act provides for removal of the Governor if performance in ensuring policy targets is inadequate (section 49), a strong accountability mechanism consistent with performance-based incentives.

Policy Targets Agreements (PTAs) define the inflation target range and emphasize transparency, explicitly linking credibility to public reporting.

5.4 Exchange-rate pegs as credibility anchors

Fixing the exchange rate (especially to a low-inflation country like the US) signals credibility: if domestic inflation exceeds foreign inflation, the peg becomes hard to defend, reserves are lost, and the regime may collapse.

5.4.1 Why pegs fail

Modern evidence supports both the logic and the risks. IMF work describes how self-fulfilling expectations can turn into speculative attacks, eroding reserves and forcing abandonment of pegs—illustrated by Argentina and Uruguay in 2002 (IMF, 2011). Argentina abandoned its convertibility regime (a peg to the US dollar since 1991) in early 2002 amid severe crisis dynamics, showing that pegs are not an absolute credibility solution when fiscal and financial conditions are inconsistent with the regime (IMF IEO, 2004).

5.4.2 The UK ERM experience

The Bank of England's analysis of leaving the Exchange Rate Mechanism in September 1992 shows that exiting involved an initial credibility loss, followed by gradual credibility rebuilding under the post-1992 inflation targeting framework (Bank of England, 1995).

6 Evidence and case studies: credibility in modern practice

6.1 Credibility as a policy instrument: communication and commitment

A vivid credibility-based crisis intervention is the ECB's "whatever it takes" episode. In July 2012, the ECB President stated: "Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough." This is widely interpreted as an expectations and credibility intervention, clarifying commitment to the currency even before major new instruments were deployed (Bank, 2012).

Similarly, the Bank of Japan's policies near the zero lower bound illustrate explicit commitment devices aimed at shifting expectations. Governor Kuroda described an "inflation-overshooting commitment"—tied to realized inflation exceeding 2%—as an unusually strong and intentionally credibility-building form of guidance (Japan, 2016).

These episodes show how the credibility framework extends beyond the inflation-bias story: when policy is constrained (e.g., near the effective lower bound), central banks rely more heavily on managing expectations through commitments and communication.

6.2 Anchoring and inflation persistence

The time inconsistency literature predicts that fragile credibility makes inflation expectations less anchored, increasing inflation persistence. IMF evidence supports this: an IMF working paper constructs an anchoring index for 45 economies (since 1989) and finds that terms-of-trade shocks have more persistent inflation effects when expectations are poorly anchored, while inflation returns more quickly to baseline when expectations are strongly anchored (Fund, 2018).

In 2025 IMF Annual Meetings transcripts, the Chief Economist warned that political pressure to ease monetary policy at the expense of price stability "always backfires," emphasizing that "trust in central banks helps anchor inflation expectations, and this credibility needs to be protected" (Fund, 2025).

These institutional statements align closely with the theoretical message: credibility is not just a normative ideal, but empirically relevant for inflation dynamics and macro stability.

7 End-of-chapter summary

Time inconsistency in monetary policy is fundamentally a problem of strategic interaction between policymakers and rational agents (Kydland and Prescott, 1977).

In the benchmark model, discretion yields **inflation bias** $\pi = (b\kappa\lambda)/a$ when policymakers desire output above potential $\lambda > 0$, but output remains at Y^* on average because systematic surprises are not feasible under rational expectations (Barro and Gordon, 1983).

Reputation and repeated interaction can sustain lower inflation as an equilibrium when policymakers discount the future sufficiently, but multiple equilibria (trust vs distrust) can exist, making credibility fragile (Barro and Gordon, 1983; Svensson, 1999).

Institutional design choices—rules (Taylor-type), delegation to conservative central bankers, accountability contracts, inflation targets and strategy statements (Fed/ECB/BoE)—are all efforts to bind discretion, anchor expectations, and protect credibility (Rogoff, 1985; Taylor, 1993; Walsh, 1995).

8 Problem questions

1. In the benchmark model, show algebraically why the time-consistent rate is $\pi = (b\kappa\lambda)/a$. Which parameter change most increases inflation bias: larger λ, higher b/a, or higher κ? Explain intuitively (Barro and Gordon, 1983).
2. Explain why the "purist" outcome can be worse than discretionary equilibrium. Relate this to real-world disinflations where credibility is initially low (King and England, 1995; Board, 2007).
3. Compare three commitment devices—(i) Taylor-type rules, (ii) conservative delegation, and (iii) contracts/targets. For each, state one benefit and one cost (Rogoff, 1985; Taylor, 1993; Walsh, 1995).
4. Using the IMF evidence on anchoring, explain how credibility can affect inflation persistence after shocks (Fund, 2018).
5. Discuss why exchange-rate pegs can enhance credibility but be vulnerable to speculative attacks and regime collapse (International Monetary Fund, Independent Evaluation Office, 2004; Fund, 2011).

8.1 References

Bank, E.C. (2012) "Verbatim of the remarks made by mario draghi." Remarks, London. Available at: https://www.ecb.europa.eu/press/key/date/2012/html/sp120726.en.html.

Barro, R.J. and Gordon, D.B. (1983) "Rules, discretion and reputation in a model of monetary policy," *Journal of Monetary Economics*, 12(1), pp. 101–121.

Board, F.R. (2007) *Three great american disinflations*. International Finance Discussion Papers 898. Federal Reserve Board.

Fund, I.M. (2011) *Can emerging market central banks bail out banks?* Working Paper. International Monetary Fund.

Fund, I.M. (2018) *Expectations' anchoring and inflation persistence.* Working Paper WP/18/280. International Monetary Fund.

Fund, I.M. (2025) "Press briefing transcript: World economic outlook, annual meetings 2025." Press briefing transcript.

International Monetary Fund, Independent Evaluation Office (2004) *Report on the evaluation of the role of the IMF in argentina, 1991–2001.* International Monetary Fund.

Japan, B. of (2016) "Japan's monetary policy: Current situation and future prospects." Governor remarks.

King, M. and England, B. of (1995) "Credibility and monetary policy: Theory and evidence." Bank of England Quarterly Bulletin, Q1.

Kydland, F.E. and Prescott, E.C. (1977) "Rules rather than discretion: The inconsistency of optimal plans," *Journal of Political Economy*, 85(3), pp. 473–491.

Rogoff, K. (1985) "The optimal degree of commitment to an intermediate monetary target," *Quarterly Journal of Economics*, 100(4), pp. 1169–1189.

Svensson, L.E.O. (1999) "Price-level targeting versus inflation targeting: A free lunch?" *Journal of Money, Credit and Banking*, 31(3), pp. 277–295.

Taylor, J.B. (1993) "Discretion versus policy rules in practice," *Carnegie-Rochester Conference Series on Public Policy*, 39, pp. 195–214.

Walsh, C.E. (1995) "Optimal contracts for central bankers," *American Economic Review*, 85(1), pp. 150–167.