

# Session 6: Inflation Targeting (IT)

# Outline

- S 6.1. An Historical Perspective before IT
- S 6.2. The rationale for IT
- S 6.3. Inflation Targeting Operational Issues
- S 6.4 Inflation Targeting Institutional Issues
- S 6.5. Outcomes of IT implementation, pre-GFC
- S 6.6. An evaluation of IT

# S 6.1. An Historical Perspective before IT

- S 6.1.1 The Great Inflation and the Volcker regime change (1979-1982)
- S 6.1.2. Explanations of the Great Inflation
- S 6.1.3. Monetary Targeting pre-IT, “pragmatic monetarism”

# ChatGPT: on IT

- Inflation targeting (IT) has generally been successful in helping central banks control inflation. Since its adoption by New Zealand in 1990, IT has spread to many countries around the world and has become a key feature of monetary policy frameworks in both developed and emerging economies. The success and effectiveness of IT in controlling inflation can be assessed through several key aspects:
- **Reduction in Inflation Rates**
  - Lower Inflation: Countries that have adopted IT have, on average, experienced a significant reduction in inflation rates. This success is attributed to the clear commitment of central banks to a specific inflation target, which helps to anchor inflation expectations among businesses, consumers, and investors.
  - Stabilized Expectations: By making monetary policy decisions more predictable and transparent, IT has helped stabilize inflation expectations, reducing the likelihood of inflationary or deflationary spirals.
- **Enhanced Credibility of Monetary Policy**
  - Central Bank Credibility: The commitment to a specific inflation target and the transparency in policy-making under IT frameworks have enhanced the credibility of central banks. This credibility makes monetary policy more effective, as it influences the public's expectations directly, contributing to more stable inflation outcomes.
  - Improved Policy Responses: The focus on a clear inflation target has allowed central banks to respond more effectively to economic shocks, thereby minimizing volatility in inflation rates.

# ChatGPT: on IT

- **Economic Stability and Growth**

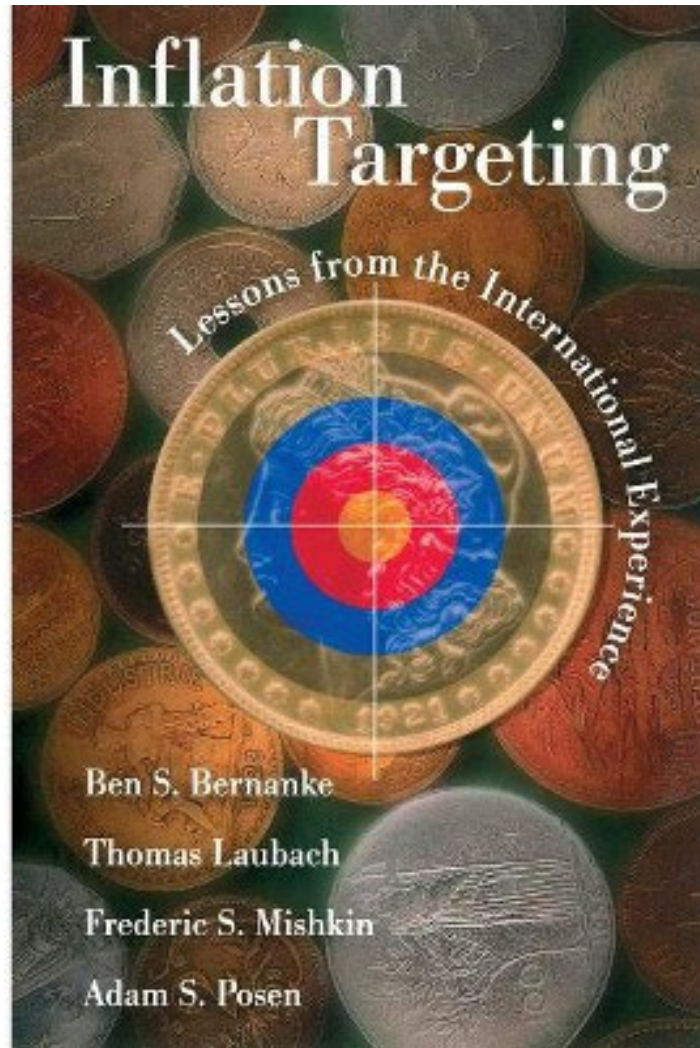
- Economic Stability: By reducing inflation volatility, IT contributes to a more stable economic environment, which is conducive to long-term planning and investment. This stability is crucial for sustainable economic growth.
- Support for Growth: While the primary goal of IT is price stability, the resulting economic stability indirectly supports economic growth by creating a more predictable environment for investment and consumption.

- **Limitations and Challenges**

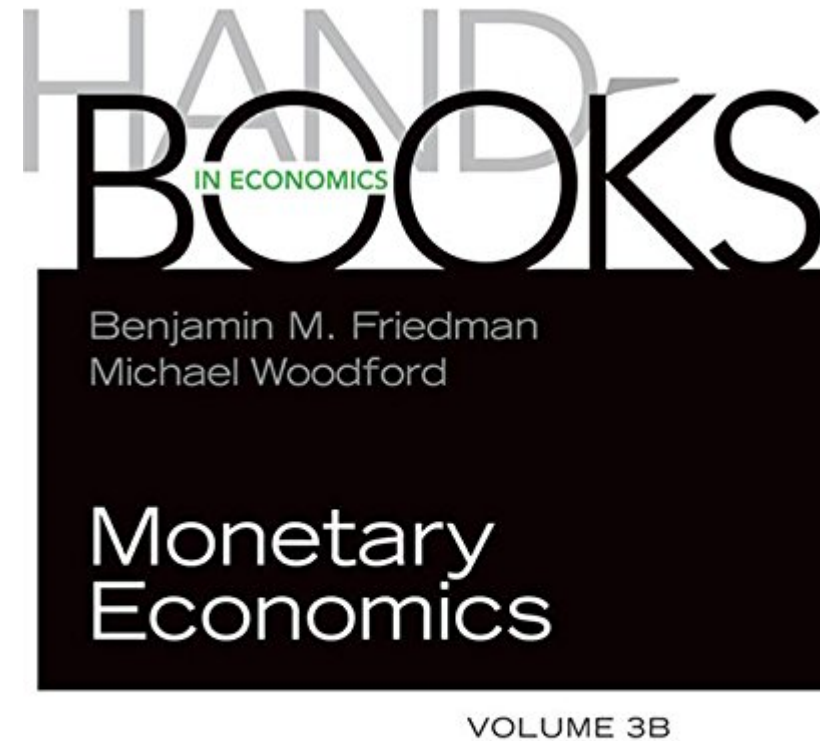
- Despite its successes, IT is not without challenges and limitations:
- Potential Neglect of Other Objectives: Critics argue that a strict focus on inflation may lead central banks to overlook other important aspects of the economy, such as unemployment or financial stability.
- Rigidity versus Flexibility: The effectiveness of IT can be challenged by the need to strike a balance between maintaining a credible commitment to the inflation target and retaining enough flexibility to respond to unforeseen economic shocks or financial crises.

- **Empirical Evidence**

- Numerous studies and empirical evidence support the conclusion that IT has contributed to lower and more stable inflation rates in countries that have adopted this framework. Comparisons between countries with and without IT regimes often show better inflation outcomes for those with IT, although it's crucial to note that successful inflation control also depends on a range of institutional, economic, and external factors beyond the adoption of IT alone.
- In summary, while not a panacea, inflation targeting has proven to be an effective tool in controlling inflation, contributing to economic stability and providing a transparent and accountable framework for monetary policy. However, the flexibility and integration of other economic objectives into the IT framework are essential for addressing the multifaceted challenges of the modern economy.



Bernanke B., T. Laubach, F. Mishkin and A. Posen «Inflation targeting: lessons from international experience», Princeton University Press, 1999



NORTH-HOLLAND

Benati L and C Goodhart "Monetary Policy Regimes and Economic Performance: the historical record 1979-2008" pp. 1159-1236

Svensson L "Inflation Targeting" pp. 1237-1302

## S 6.1.1 The Great Inflation and the Volcker regime change (1979-1982)

- Volcker press conference Oct 16, 1979: new regime of monetary policy by FED
- Prior: “monetary pragmatism” in Germany and Switzerland despite never adopting a  $x\%$  growth rule for monetary base control; Bundesbank gained reputation; FED adapted the approach, if they were:
  - Deviations of money incomes / inflation / money growth from “target”
  - Deviation of desired / required reserves from base money at initial interest rates
  - Interest rate adjust, should be allowed to “shoot up” to drive incomes/inflation down
- Plan worked as planned with recession; Volcker desinflation in the US

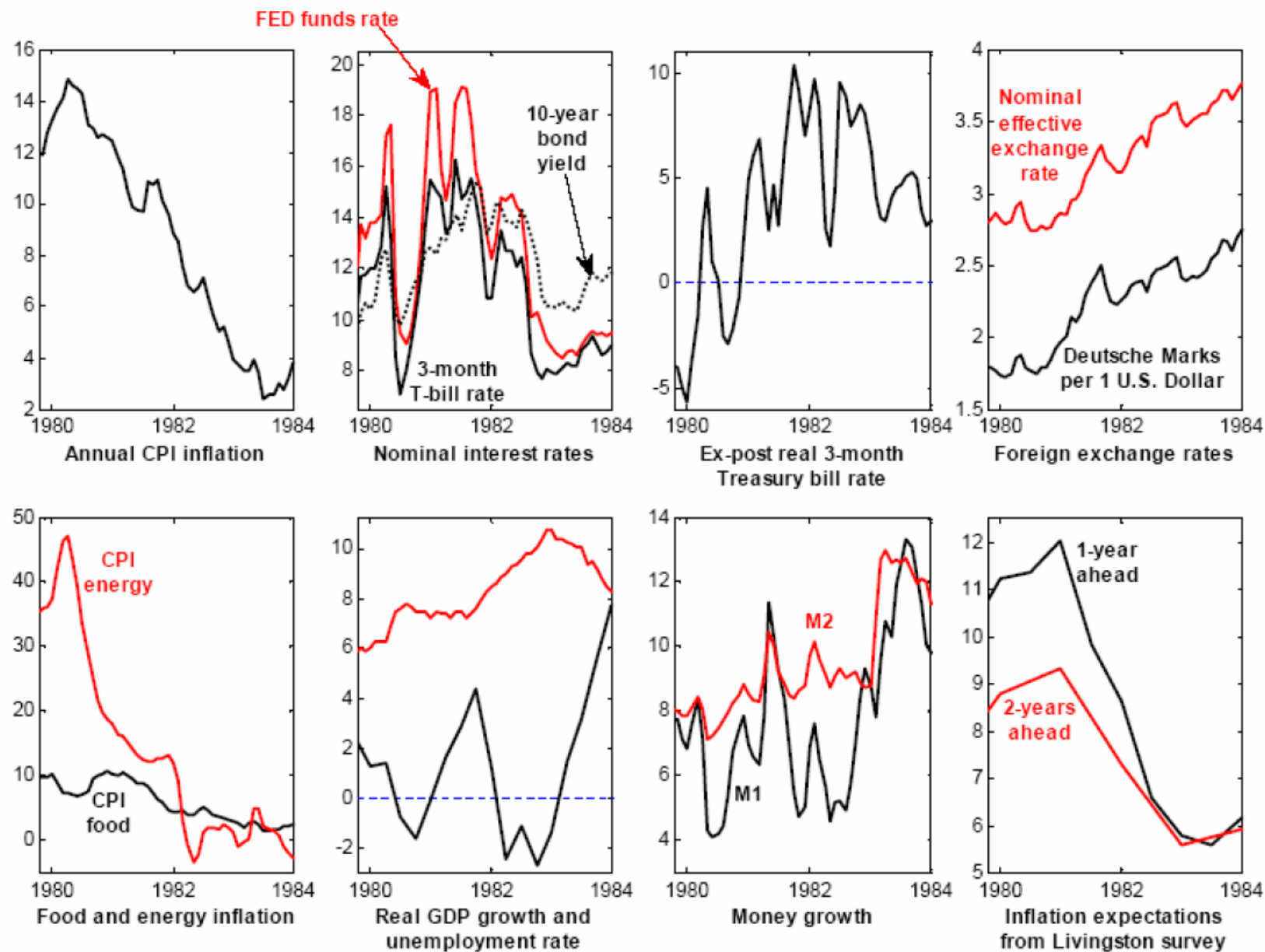
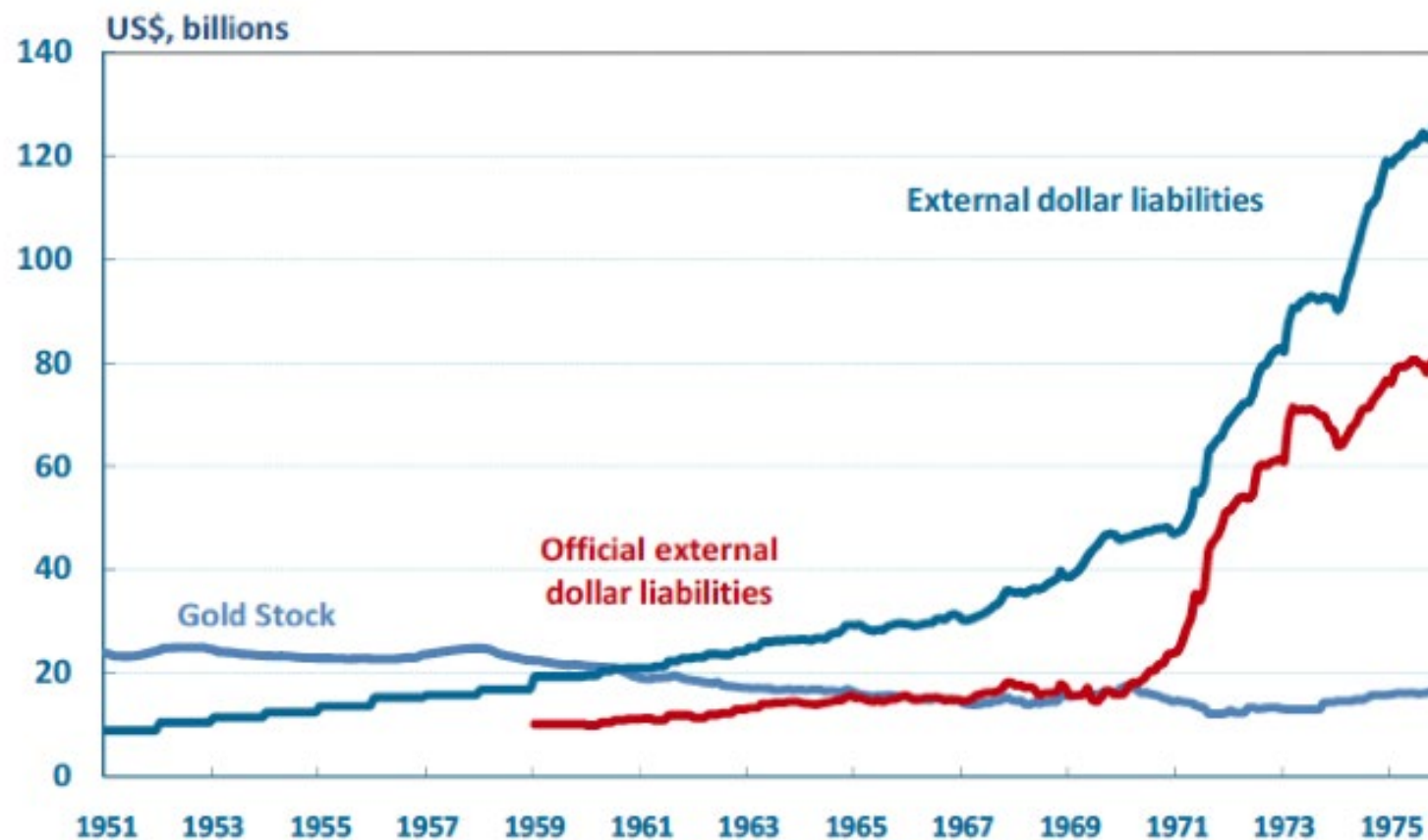


Figure 3.2 The Volcker disinflation: United States, October 1979-December 1983, selected macroeconomic data

## S 6.1.2. Explanations of the Great Inflation

- Great inflation started before oil shocks (73-79)
- Among causes: fiscal policy (financing Vietnam war) in an overheated economy; transmission of oil shocks under “cultural accommodation” (not in Germany); de-anchored expectations
- Accommodation of oil shocks possible because of ample global liquidity after the collapse of the Bretton Woods agreements (1971)

# “De-basing” of the USD – Gold BW relation



Source: CEPR

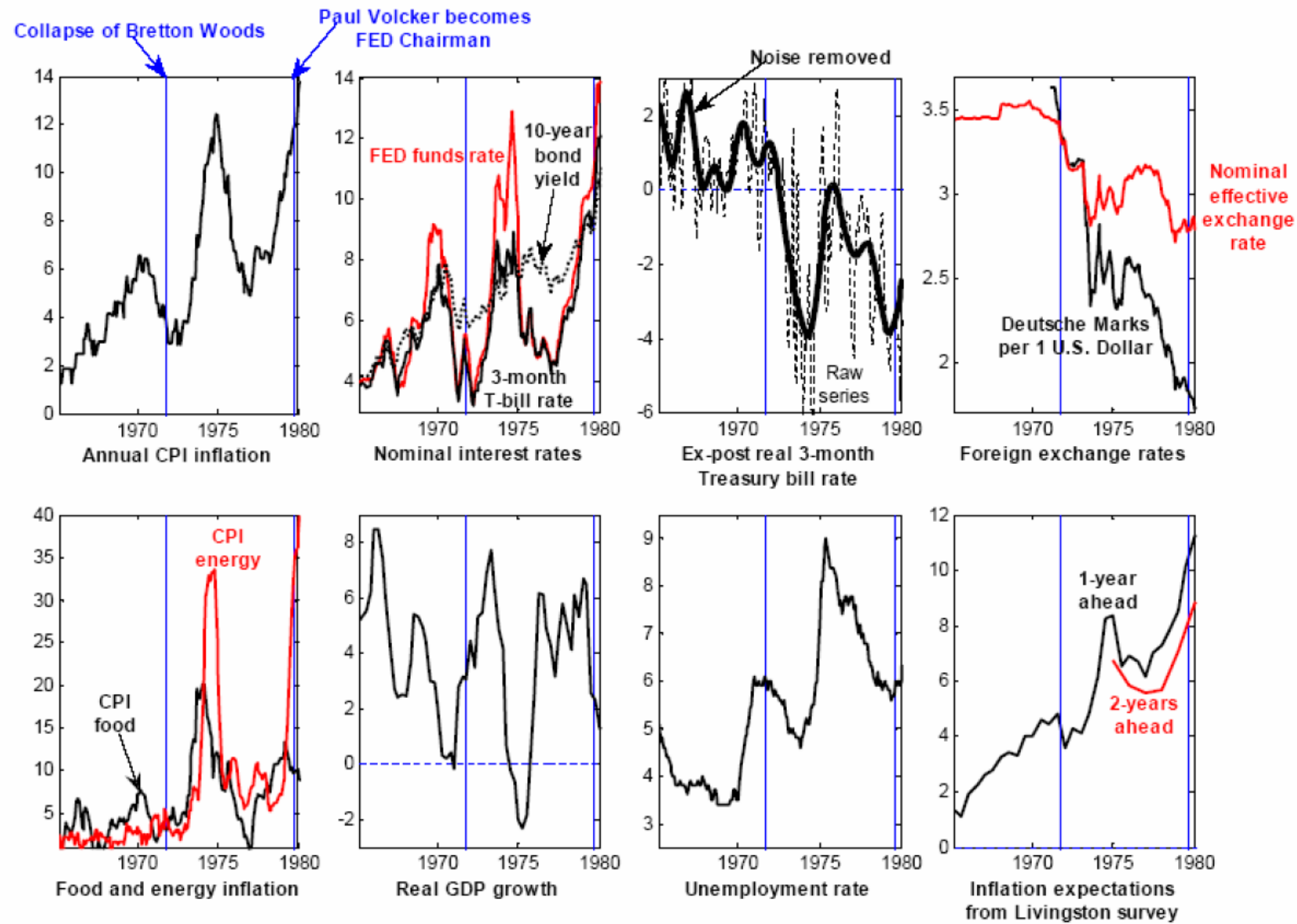


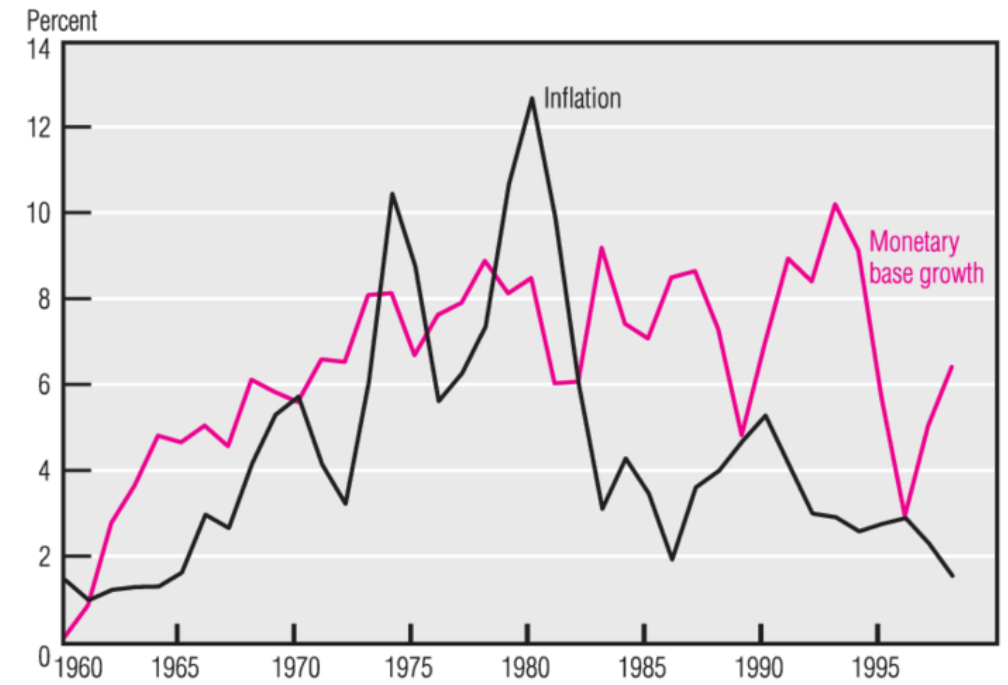
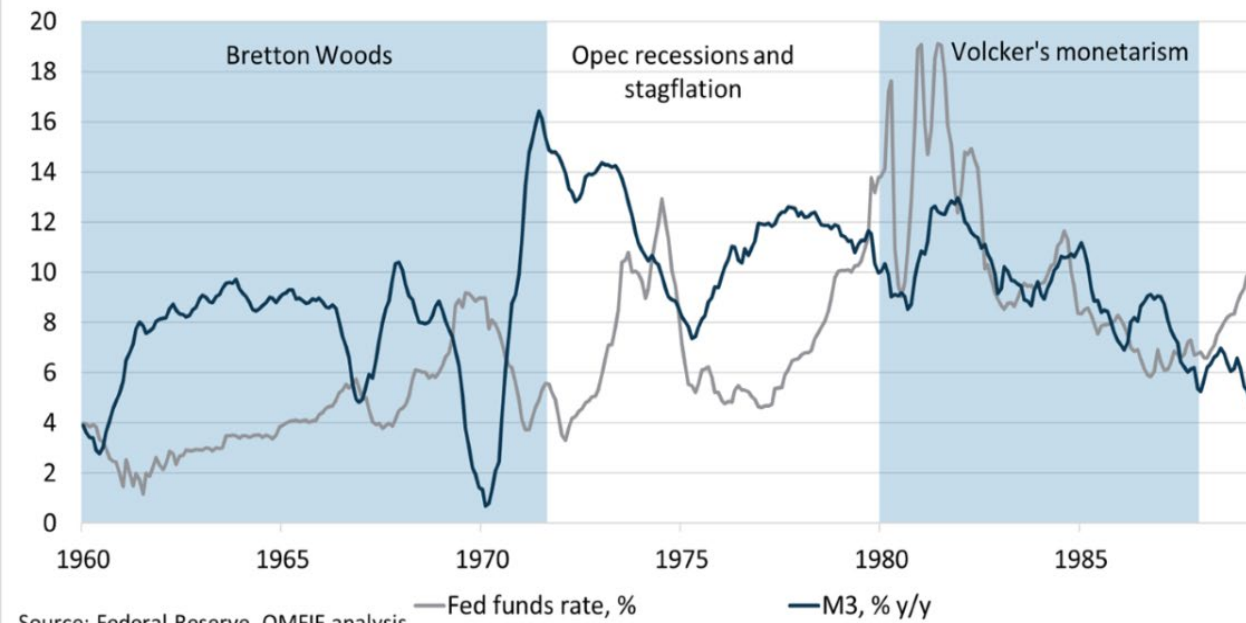
Figure 2.1 United States, January 1965-December 1979, selected macroeconomic data

Source: Benati L and C Goodhart

## S 6.1.3. Monetary Targeting pre-IT, “pragmatic monetarism” (1/2)

- Similar approach to US followed by many besides Germany, Switzerland: UK, Canada, Japan; tight money brings rapid deflation (with recession)
- “Pragmatic Monetarism” in 1979-82 is a common belief that:
  - MLT reliability of the relation monetary growth and nominal incomes / inflation
  - Velocity (demand for money) are predictable, stable; intermediate targets
  - Interest rate acts to adjust expenditures and monetary aggregates
  - Avoid methods to directly control monetary base
- Worked well except for collapse of (supposed) stability of demand for money function

US money and interest rates, 1960 to 1990



## S 6.1.3. Monetary Targeting pre-IT, “pragmatic monetarism” (2/2)

- With loss of stability in money demand, what alternatives?
- Shift to borrowed reserves target (FED), not explicit?
- Shift to pegging currencies to successful countries (Germany, US) that had controlled inflation
  - Done in Europe with the Exchange Rate Mechanism (ERM) of the European Monetary System
  - ERM fixed European currencies exchange rates within certain bands ( $\pm 2.25\%$ ) of fluctuation from the DM
  - Pegged (fixed but adjustable) prone to market anticipation and profit making; crisis of 1992 (UK, Italy, Spain, then Sweden, etc); despite widening bands

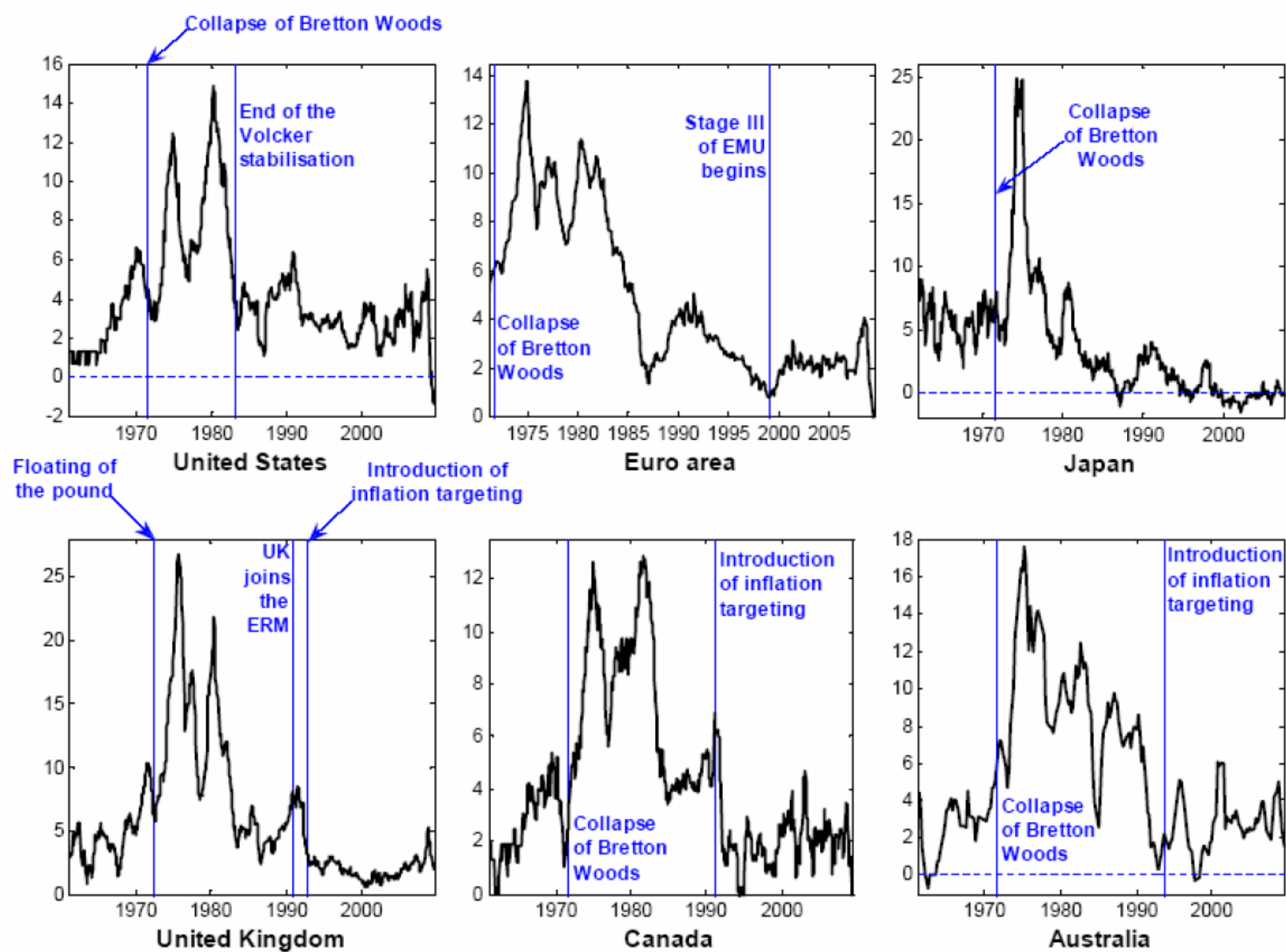


Figure 1.2 Annual CPI inflation rates

Source: Benati L and C Goodhart

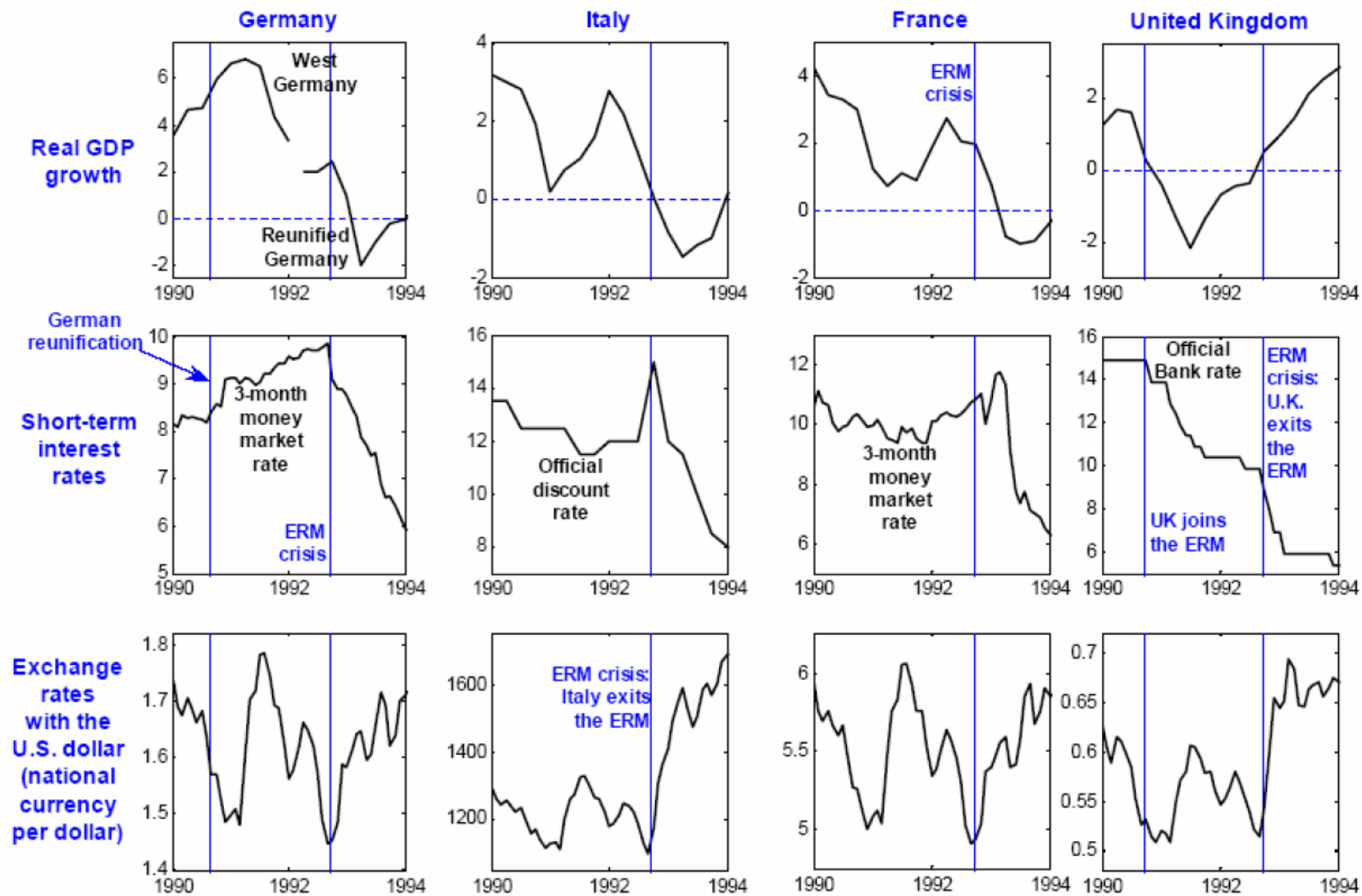


Figure 3.3 Selected macroeconomic data for Germany, Italy, France, and the United Kingdom, 1989Q4–1993Q4

Source: Benati L and C Goodhart

## S 6.2. The rationale for IT

- S 6.2.1. “Active” Monetary Policy?
- S 6.2.2. IT and the Need for a Nominal Anchor
- S 6.2.3 IT as a “framework”, “regime” or “practice”, not a “rule”

## S 6.2.1. “Active” Monetary Policy? (1/2)

- Activist MP believed trade-off between activity (unemployment  $U$ ) and inflation (Phillips curve); permanent low  $U$  x “some” inflation
- Monetarist challenge (Friedman, Phelps): some inflation leads to temporary stimulus but higher wages catch-up; no long run trade-off
- Expectations challenge (Lucas): agents change behavior when policy changes; activist policies myopic and counter-productive
- Time inconsistency challenge (Kydland & Prescott): in ST, expansionary policy better for CB (lower  $U$ ); in MLT, agents (workers, firms) compute CB bias, inflation expectations increase due to lack of CB credibility

## S 6.2.1. “Active” Monetary Policy? (2/2)

- Challenges to “activist” MP make trade-off between U and inflation ineffective: in the LT, CB can only affect inflation; even if ST MP can affect outcomes
- Rationale for IT comes from this background but benefits of low inflation
  - Experience of “high” or “hyper-inflation”, even “moderate” inflation sticks
  - Even “low” inflation can disrupt decisions (save, invest, pricing, etc)
  - “Low” inflation when compounded over 30 years bring costs not well perceived

## S 6.2.2. IT and the Need for a Nominal Anchor

- IT three origins
  - Reduced confidence in “direct monetary activist” policies
  - Better understanding of benefits from price stability
  - Need for a Nominal Anchor for the economy
- Nominal anchor
  - Immediate when relative price of any good vis-à-vis “gold” (all commodities)
  - But under “fiat” money? Need for a “anchor” or constraint on MP to tie all prices and replace old reference to “gold” etc.; credibility and confidence
  - MP more effective with a nominal anchor; easy to understand and check; “price stability” is that anchor;

## S 6.2.3 IT as a “framework”, “regime” or “practice”, not a “rule”

- MP debate as “rules” or “discretion”; if IT is “rule-based”, could bring problems (eg., unstable economy facing supply shocks; how to deal with multiple objectives, U, growth, ER, etc)
- Critics of IT as “rule”: IT did not reduce cost of disinflation (U, output); IT per se did not change expectations (measured by surveys) ex-ante
- IT is rather a “framework”, “MP regime” or “practice” by CBs:
  - No simple mechanical instruction for CBs; rather usage of structural models, judgments with large information set, all encompassing data and analysis
  - CB keep “constrained discretion” within objective of price stability

# S 6.3. Inflation Targeting Operational Issues (1/2)

- S 6.3.1. IT: announced numerical target, forecast targeting, transparency and accountability
- S 6.3.2. The measure of inflation to be targeted
- S 6.3.3. The numerical value of the “target”
- S 6.3.4. Price-level or inflation target
- S 6.3.5. The IT targeting horizon
- S 6.3.6 The IT information set, models and challenges

## S 6.3. Inflation Targeting Operational Issues (2/2)

- S 6.3.7. IT tolerance to deviation from target
- S 6.3.8. Timing for implementing IT
- S 6.3.9. IT Communication, transparency and accountability

## S 6.3.1. IT: announced numerical target, forecast targeting, transparency and accountability

- IT framework operates by announcing publicly a numerical target for inflation to be pursued as policy objective; IT has “flexibility”: other variables could also be targets (eg., output gap, resource utilization, etc)
- IT is “forecast” targeting (Svensson): since there are lags between MP action and its effects, IT will be guided by forecasts of the targeted inflation (using different models); decisions are IT policy rate path
- IT requires high transparency and accountability: publication of periodic reports on forecasts, models, etc to shape expectations; obligation to respond to public and markets about outcomes and differences with previous forecast (eg., hearings, conferences, etc); no secrecy

# IT Adoption

- New Zealand the first
- Japan in 2013
- European Central Bank and the US Federal Reserve adopted many of the main elements of IT but do not officially call themselves inflation targeters; committed to achieving low inflation, but ECB “around below 2%” and FED adopted “2%” in 2012

## TARGETING INFLATION

Countries across the world have adopted inflation targeting irrespective of their income level.

| COUNTRY            | INFLATION TARGETING ADOPTION DATE | TARGET INFLATION RATE AT TIME OF ADOPTION | COUNTRY              | INFLATION TARGETING ADOPTION DATE | TARGET INFLATION RATE AT TIME OF ADOPTION |
|--------------------|-----------------------------------|-------------------------------------------|----------------------|-----------------------------------|-------------------------------------------|
| New Zealand        | 1990                              | 1 – 3                                     | Philippines          | 2002                              | 4 +/- 1                                   |
| Canada             | 1991                              | 2 +/- 1                                   | Guatemala            | 2005                              | 5 +/- 1                                   |
| United Kingdom     | 1992                              | 2 (point target)                          | Indonesia            | 2005                              | 5 +/- 1                                   |
| Australia          | 1993                              | 2 – 3                                     | Romania              | 2005                              | 3 +/- 1                                   |
| Sweden             | 1993                              | 2 (point target)                          | Serbia, Republic of  | 2006                              | 4 – 8                                     |
| Czech Republic     | 1997                              | 3 +/- 1                                   | Turkey               | 2006                              | 5.5 +/- 2                                 |
| Israel             | 1997                              | 2 +/- 1                                   | Armenia              | 2006                              | 4.5 +/- 1.5                               |
| Poland             | 1998                              | 2.5 +/- 1                                 | Ghana                | 2007                              | 8.5 +/- 2                                 |
| Brazil             | 1999                              | 4.5 +/- 2                                 | Uruguay <sup>1</sup> | 2007                              | 3–7                                       |
| Chile              | 1999                              | 3 +/- 1                                   | Albania              | 2009                              | 3 +/- 1                                   |
| Colombia           | 1999                              | 2 – 4                                     | Georgia              | 2009                              | 3                                         |
| South Africa       | 2000                              | 3 – 6                                     | Paraguay             | 2011                              | 4.5                                       |
| Thailand           | 2000                              | 0.5 – 3                                   | Uganda               | 2011                              | 5                                         |
| Hungary            | 2001                              | 3 +/- 1                                   | Dominican Republic   | 2012                              | 3–5                                       |
| Mexico             | 2001                              | 3 +/- 1                                   | Japan                | 2013                              | 2                                         |
| Iceland            | 2001                              | 2.5 +/- 1.5                               | Moldova              | 2013                              | 3.5–6.5                                   |
| Korea, Republic of | 2001                              | 3 +/- 1                                   | India                | 2015                              | 2–6                                       |
| Norway             | 2001                              | 2.5 +/- 1                                 | Kazakhstan           | 2015                              | 4                                         |
| Peru               | 2002                              | 2 +/- 1                                   | Russia               | 2015                              | 4                                         |

Sources: Hammond 2011; Roger 2010; and IMF staff calculations.

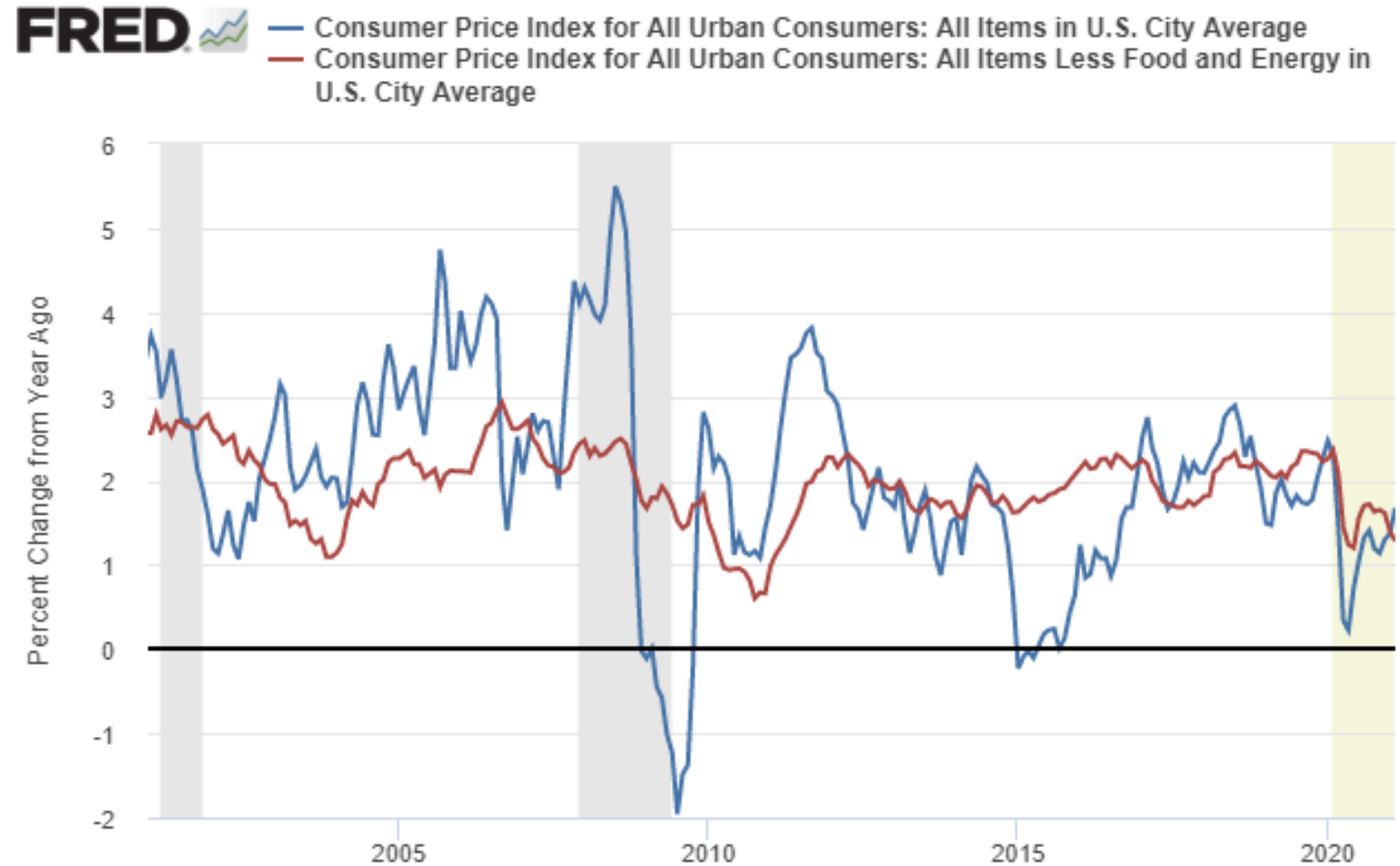
Note: Countries are classified as inflation targeters based on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) database.

<sup>1</sup>Adoption date is based on the starting point when the interest rate became the main monetary policy instrument.

## S 6.3.2. The measure of inflation to be targeted

- IT CB should decide and communicate the price index, basis for calculating change (inflation)
  - should be publicly available, broad, accurate and timely for regular checks;
  - better to be constructed by independent agency (Statistical Office)
- All CBs use some consumer price index (CPI)
  - Headline CPI can be used
  - “Core” CPI can also be used, excluding excessively volatile components (food, energy, etc)

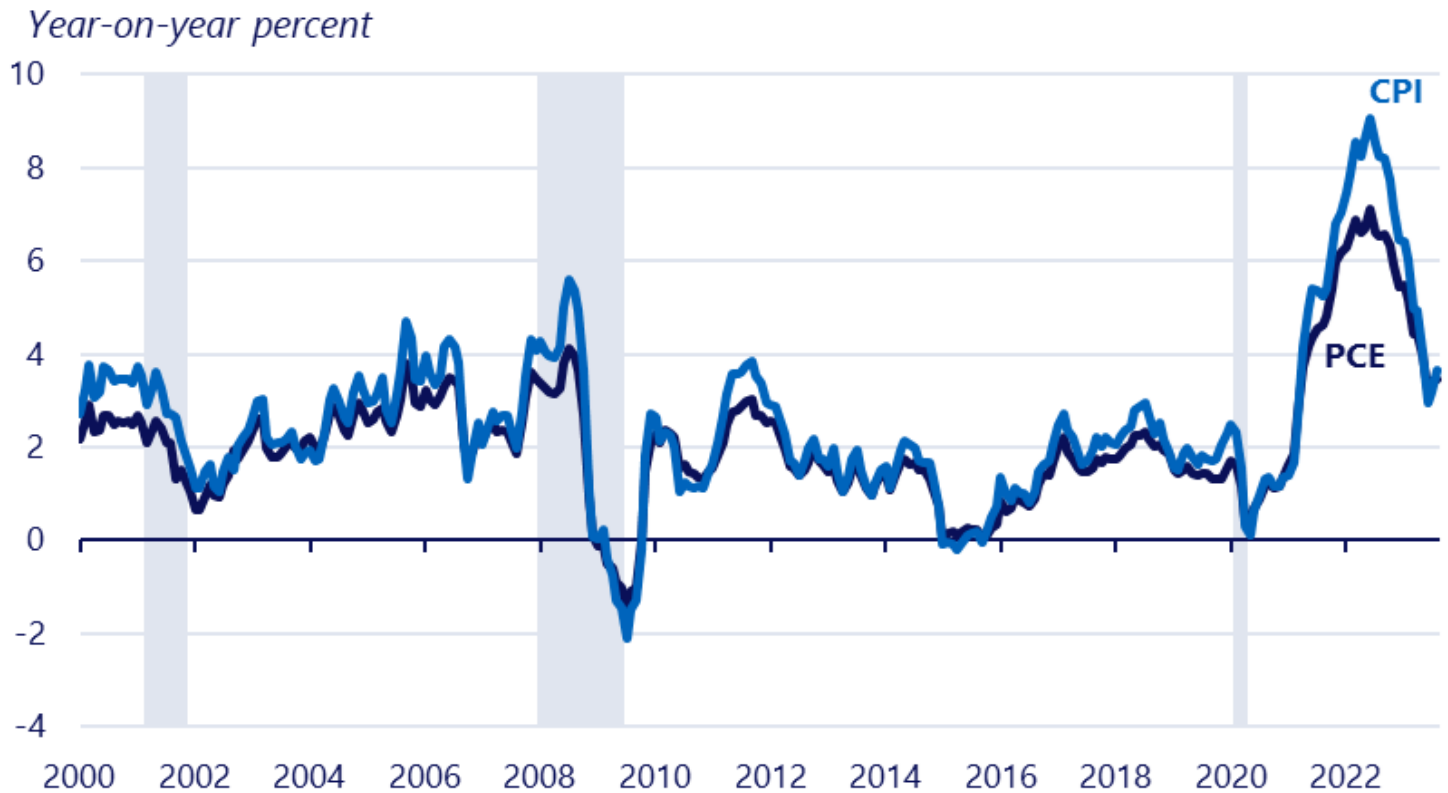
- Core inflation is inflation-related to all the commodities, goods, and services in the economy minus the volatile food prices and fuel prices
- Headline inflation is inflation-related to all the economy's commodities, goods, and services
- Trend best captured by “core inflation”



Source: U.S. Bureau of Labor Statistics

- The CPI measures the change in the out-of-pocket expenditures of all urban households and the PCE index measures the change in goods and services consumed by all households, and nonprofit institutions serving households.
- The two measures have different scopes as well—for example, PCE includes the price of all medical goods and services purchased by employer-provided insurance as well as public programs such as Medicare. CPI, in contrast, only includes medical items purchased out-of-pocket by households

## Headline CPI and PCE Inflation Since 2000



**Council of Economic Advisers**

Source: Bureau of Economic Analysis; CEA calculations.

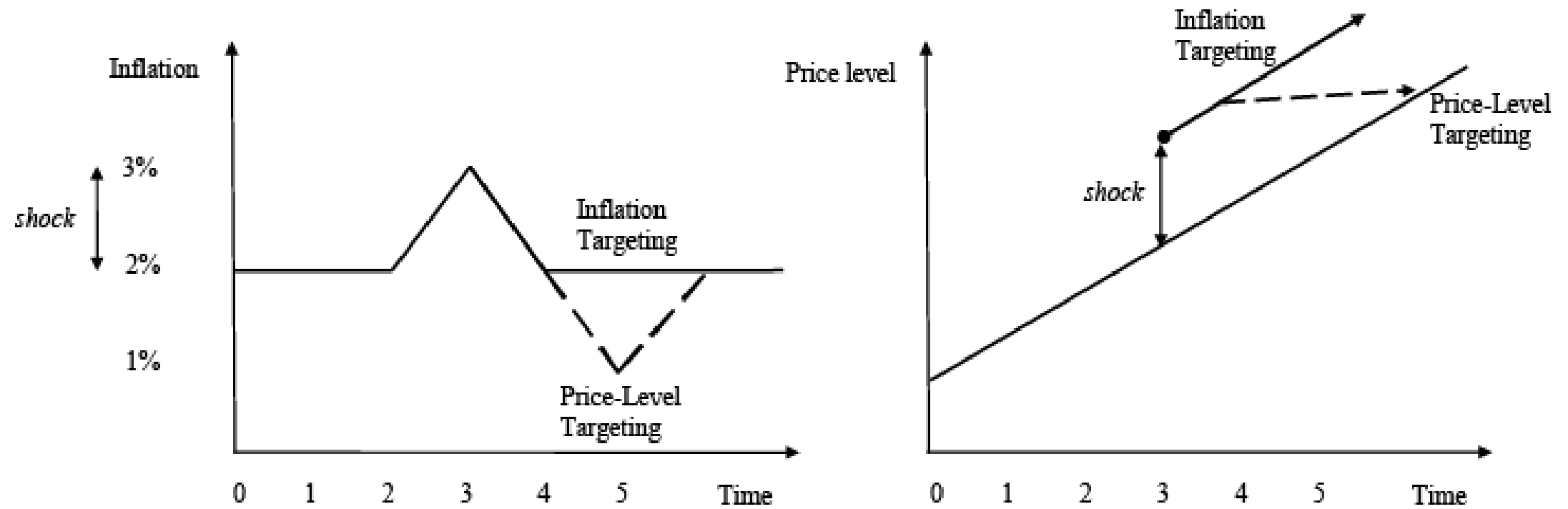
As of September 29, 2023 at 8:30am.

## S 6.3.3. The numerical value of the “target”

- Strict price stability would be: zero inflation; but many studies report systematic measurement bias for CPI (0.5-2%); so target  $> 0\%$
- If too low a target, risk of deflation (problems of liquidity, insolvency and financial instability)
- For AEs numerical value is around 2% per annum; but can vary 1-3%; higher for EMEs
- Numerical target can be:
  - Exact number in a specific point in time (end of the year)
  - Range with band of tolerance (+ or  $- x\%$ ) with a targeted mid-point

## S 6.3.4. Price-level or inflation target

- Debate over target should be inflation rate of the price level
- Strict price level targeting implies that overshooting and/or undershooting need to be compensated within time span
  - might create more volatile MP and uncertainty for real economy (eg. periods of deflation followed by reflation)
- Practice of IT CB is to focus on inflation per se



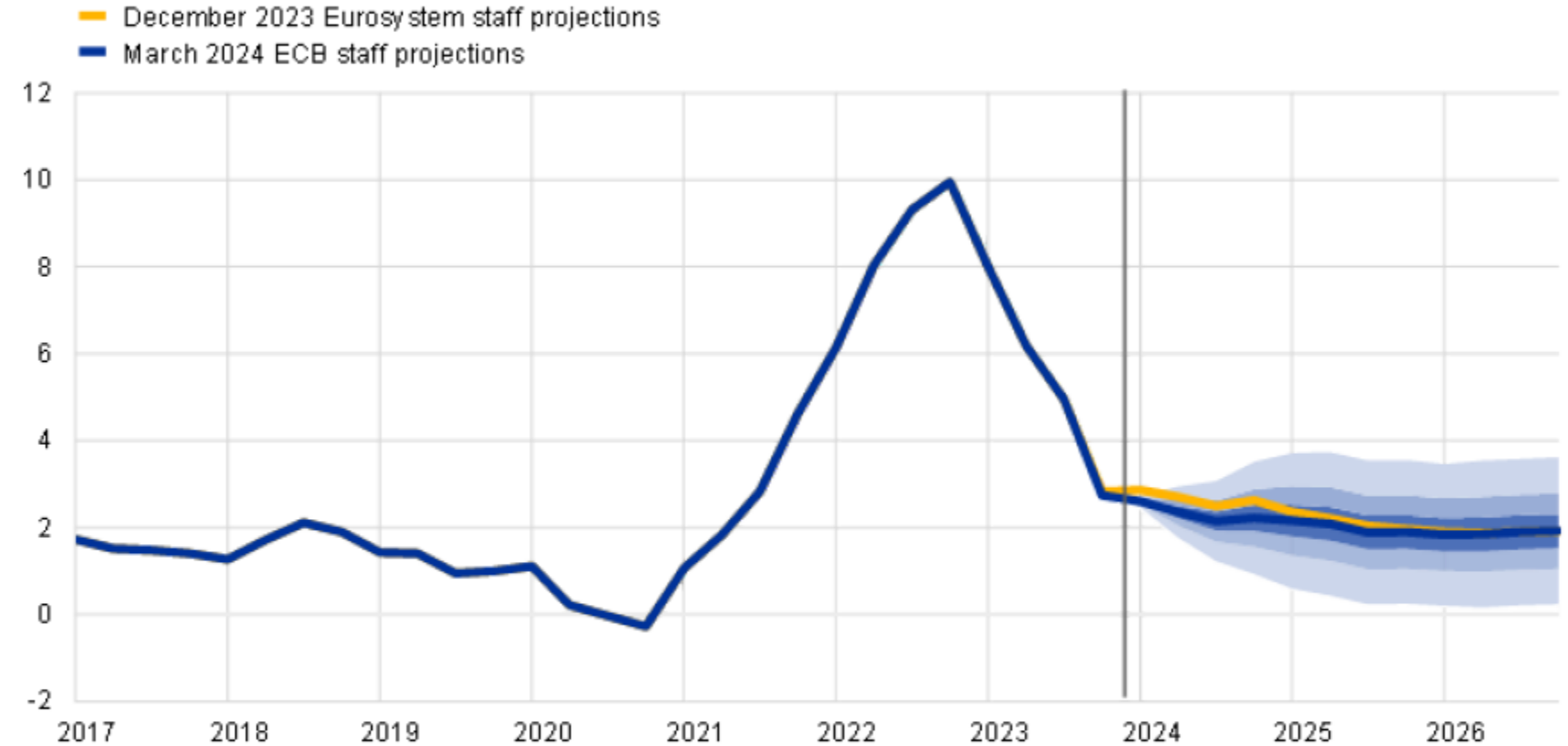
Source: CEPR

## S 6.3.5. The IT targeting horizon

- Since MP operates with lagged effects; relevant horizon for achieving target is important; inflation-target horizon is the period during which MP actions are expected to return inflation to target. Policy-makers have an interest in communicating this horizon, since it is likely to help anchor inflation expectations
- Can be one to three-four years; less than one year: limited effect of MP; more than three-four years: limited credibility to check CB performance
- In practice, variety of choices and procedures:
  - Target can be announced for coming year with an explicit long run target
  - Target can be announced for coming year ( $t$ ) with additional targets for  $(t+1)$ ,  $(t+2)$ , etc

# Euro area HICP inflation

(annual percentage changes)



Notes: The vertical line indicates the start of the current projection horizon. The ranges shown around the central projections for HICP inflation are based on past projection errors, after adjustment for outliers. The bands, from darkest to lightest, depict the 30%, 60% and 90% probabilities that the outcome of HICP inflation will fall within the respective intervals. For more information, see [Box 6 of the March 2023 ECB staff macroeconomic projections for the euro area](#).

## Central banks

### Central banks rethink forecasting after failures on inflation

ECB, Fed and BOE overlooked potential for global price spikes after end of pandemic on Ukraine



© FT montage/Getty Images/Bloomberg/Reuters

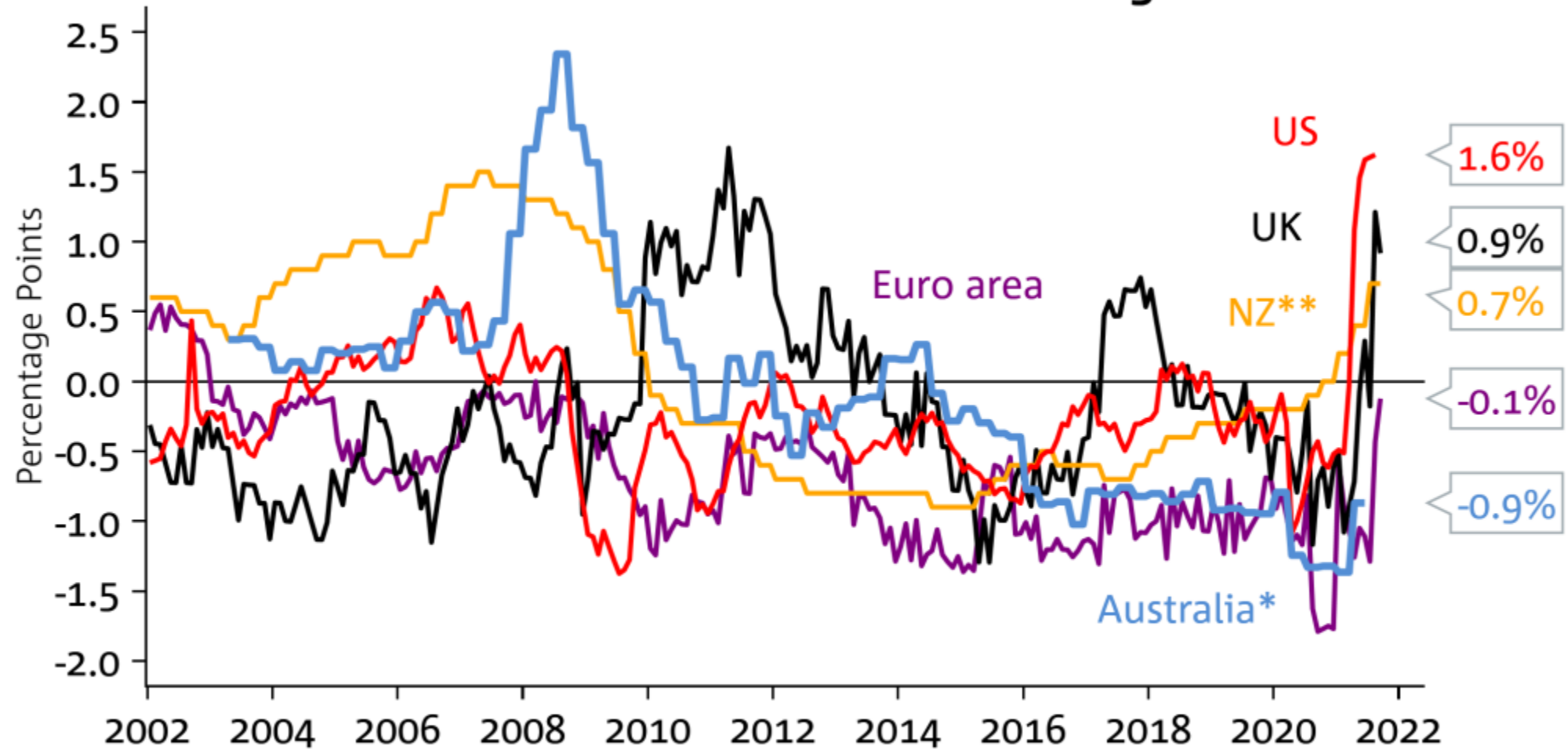
## S 6.3.6 The IT information set, models and challenges

- All information relevant for achieving inflation target (forecasting it) should be used
- Use forecast of inflation at the defined time horizon (say end-year) as an intermediate target for CB MP action
  - This information needs not to be interpreted mechanically (implying MP action)
  - Can be combined with many other sources (surveys expectations, financial data)
- Models to forecast inflation at relevant horizon therefore important (eg., small models, VARs, large DSGEs, etc); usually combination is used
- Challenge: clear, public and periodic revision of models, forecasts and communication

## S 6.3.7. IT tolerance to deviation from target

- Targets can be missed, IT is a “constrained discretion” MP regime; when can target be missed; do they need to be changed;
- IT has to cope with unanticipated demand and supply shocks that might change path for inflation, forecasts and expectations; response depends on type and intensity of shock
- Standard demand shock requires standard MP response under IT
- Supply shocks: temporary effect on inflation might be “seen through” (eg., accommodated without MP response) or reacted to (eg, when it has important 2<sup>nd</sup> round effects; when it changes structural features of the economy; that might require new target for some time)
- IT has built-in features to explain and communicate to agents; clarify the nature of shocks and explain the CB course of action

## Core Inflation Deviation from Target



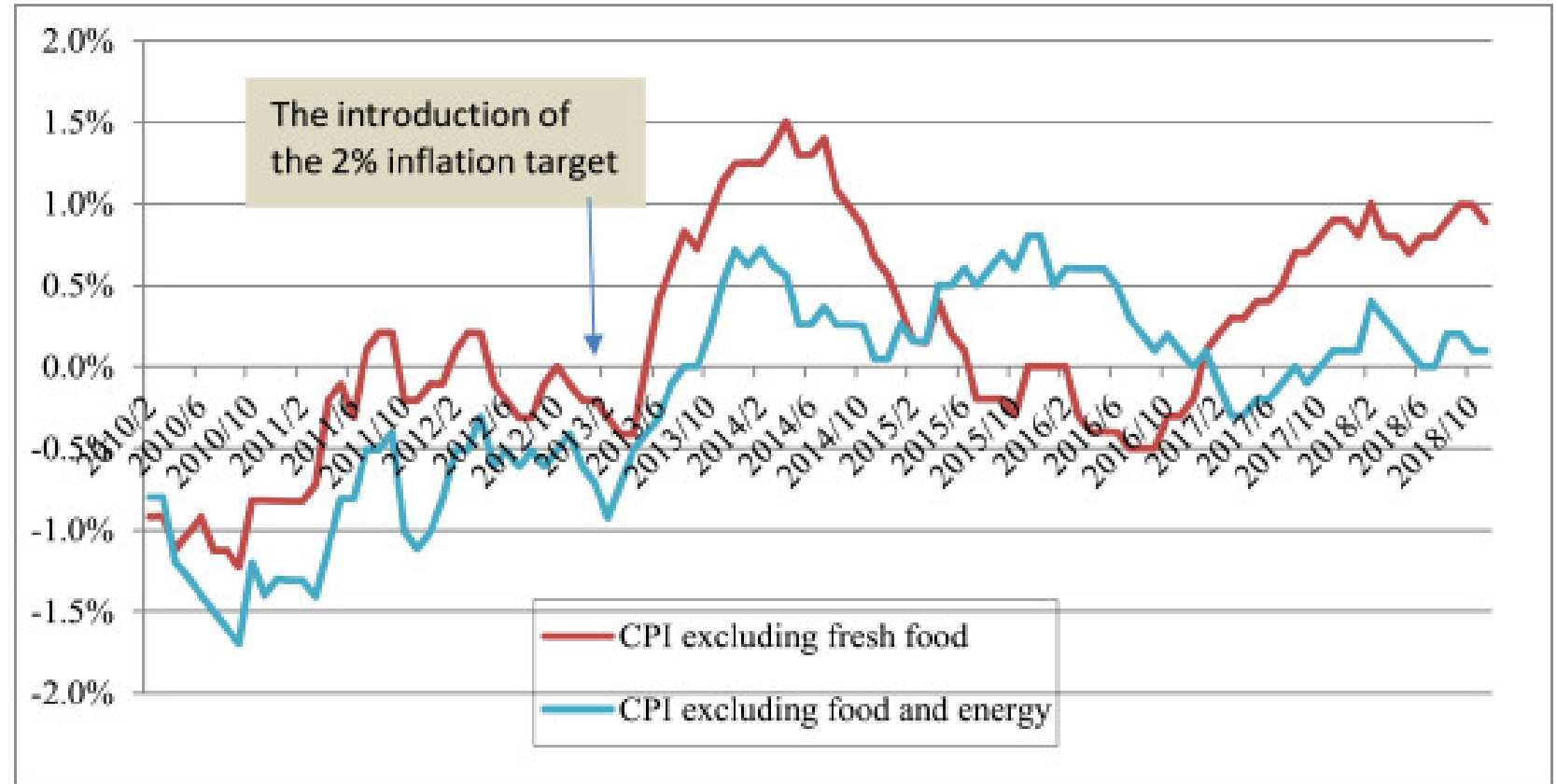
\* Mid-point of the 2-3% inflation target

\*\* Mid-point of the 1-3% inflation target, core inflation from the sectoral factor model

Source: National Australia Bank, Macrobond

# Japan

- BoJ adopted in 2013 a 2% inflation target
- Before the BOJ announced the 2% inflation target, the estimated anchor of inflation expectations was negative
- The new 2% target increased the estimated anchor to significant positive values.
- BOJ's explicit inflation target helped to partly anchor inflation expectations.
- However, the estimated anchor has never reached the target and started to decline when it turned out that the 2% target would not be feasible in the short-run.
- Relationship between explicit inflation targeting and perception of feasibility to anchor inflation expectations persistently.



Source: Fukuda S I, Naoto Soma N (2019)

## S 6.3.8. Timing for implementing IT

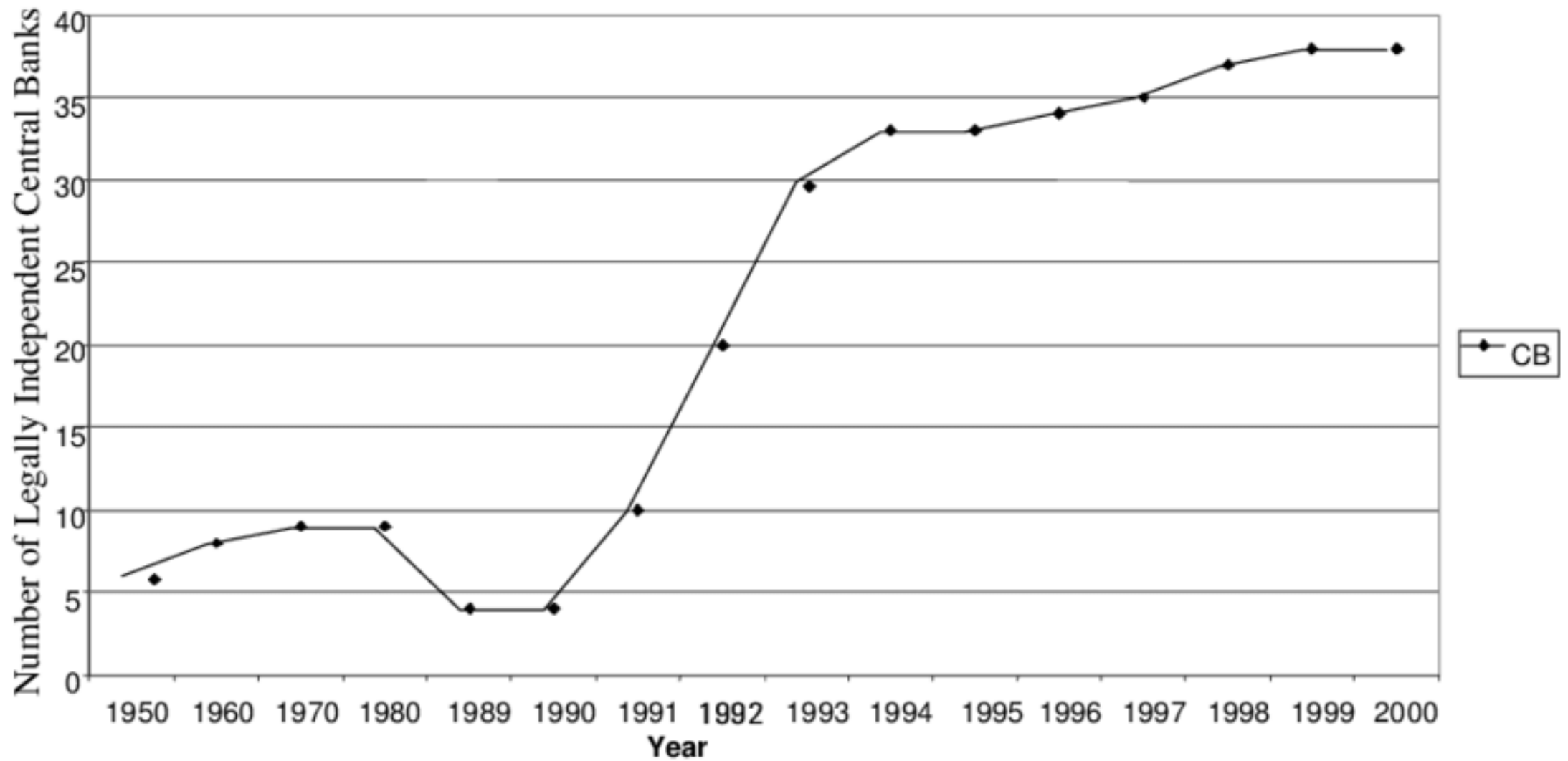
- Some initial success in taming inflation might be necessary; minimum of credibility capital
- In AEs, followed the “pragmatic monetarist” period where inflation was falling
- In EMEs, followed macro-financial crises of the late 1990s, but as part of disinflation programs

# S 6.4 Inflation Targeting Institutional Issues

- S 6.4.1. Central bank credibility and independence
- S 6.4.2. Decisions by a Monetary Policy Committee (MPC)
- S 6.4.3. Ritual of communication and anchoring expectations

## S 6.4.1. Central bank credibility and independence

- Literature and outcome of IT suggest key role of credibility and its relationship with CB independence
- Goal independence: CB sets its own policy objective (including inflation target)
- Instrument independence: elected officials set the inflation target and CB is free to pursue its own strategy to attain it
- Combination of both exist

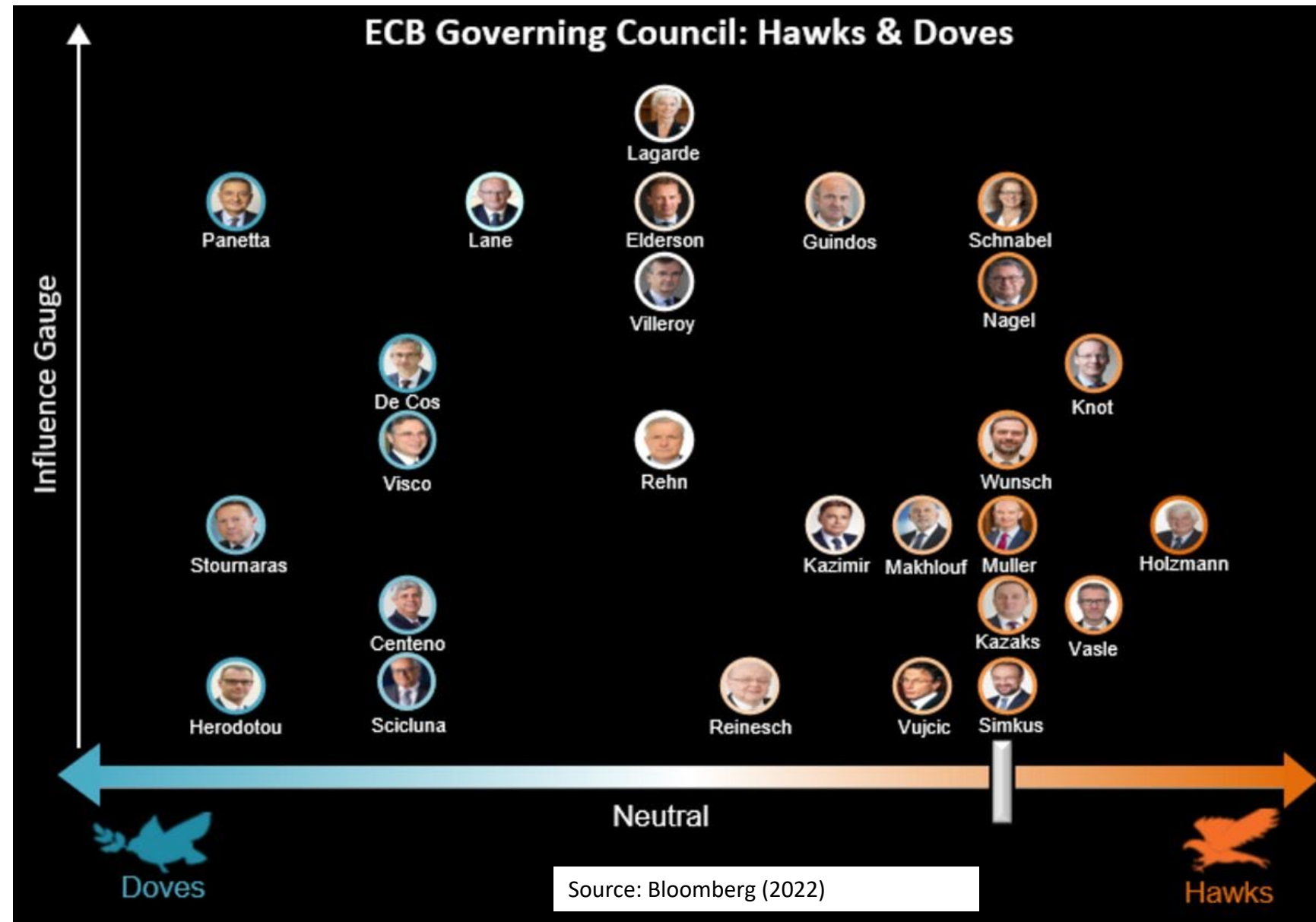


Source: Research Gate

## S 6.4.2. Decisions by a Monetary Policy Committee (MPC)

- Under IT, better decisions by Committee than a single individual (Governor) (Blinder)
  - Analysis of state of the economy best done from multiple perspectives
  - Decision by consensus, votes with possible dissent
  - Dates of regular meetings pre-announced and fixed
  - Publication of views and votes now widespread practice; including explicit reporting of interest path for each MPC member
- Usually a Monetary Policy Committee (MPC) with Governor and restricted membership
  - Identification of “doves” and “hawks” among MPC members
  - Signaling of “views” by MPCs, controlled by each “label”, influence market view

- Commentators on monetary policy and market participants often refer to central bankers with labels hawk and dove, where a hawk is thought of assigning a higher priority to fighting inflation and a dove to supporting more output growth and employment
- Market participants watch closely speeches by members of the MPC to provide “signals” about voting preferences



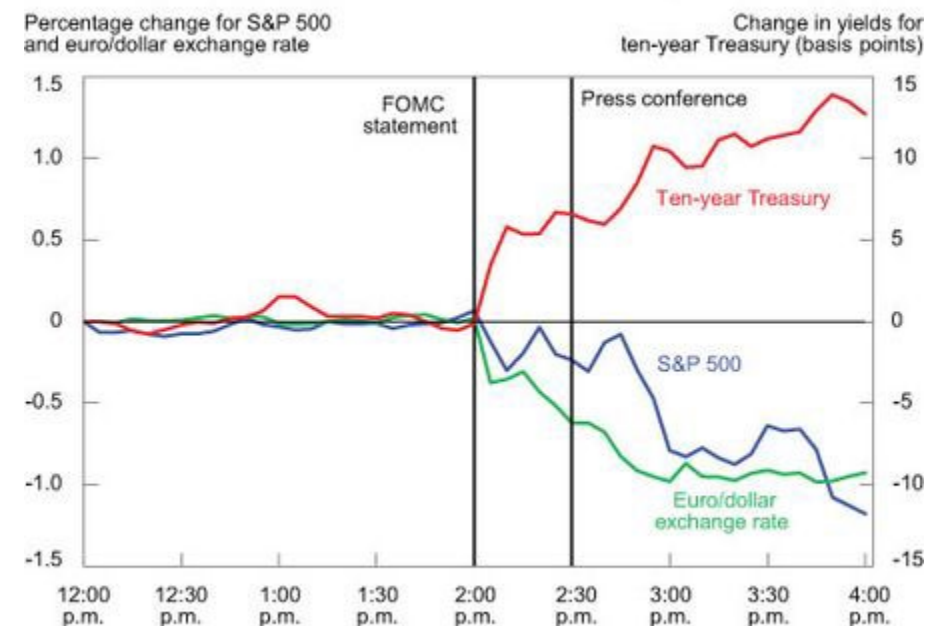
## S 6.4.3. Ritual of communication and anchoring expectations

- IT CB provide general information about state of the economy, besides the conduct of MP and how is it achieving its objective
- Usually ritual of communication, part of anchoring expectations
  - Periodic reports (quarterly, annually, etc)
  - Press conferences after MPC decisions to explain rationale and provide guidance by sessions of dialogue with press and others
  - Periodic hearings in front of Legislative branch
  - Speeches and interviews by Governor and other senior members of CB
  - Formal communication (letter, report, etc) on achieving inflation target
- Accountability to elected officials

- When central bankers speak, traders, journalists, and politicians listen with bated breath. The marked asset price reaction to Chairman Bernanke's June press conference confirms the importance of his comments in the marketplace.
- The chart shows the dynamics of U.S. asset prices in five-minute intervals (the ten-year Treasury rate, S&P 500, and euro/dollar exchange rate) during the announcement day. The strong market reaction was spurred not only by the release of the Federal Open Market Committee (FOMC) statement at 2 p.m., but also by the question-and-answer part of the press conference at 2:30 p.m., when journalists questioned the Chairman to better understand the Fed's views. In this case, markets thought Chairman Bernanke revealed new, important information, and asset prices moved.



Traders Took Notice: June 19, 2013, FOMC Meeting



Source: Liberty Street Economics (2013)

## S 6.5. Outcomes of IT implementation (1993-2006), pre-GFC and the ZLB

- S 6.5.1. The NICE period, the “Great Moderation”
- S 6.5.2. Europe and the Euro
- S 6.5.3 Japan
- S 6.5.4 IT in EMEs

## S 6.5.1. The NICE period, the “Great Moderation” (1/3)

- NICE: Non-Inflationary Consistently Expansionary period 1993-2006
- Steady growth in output per capita; unemployment stable but still relatively high (v-a-v pre-73)
- Inflation lower and declining (Great Moderation, see below, since mid-1980s)
- Remarkable low standard deviation of macro variables (especially inflation and growth)
- Still, shocks: Asian Crisis; Russian default; LTCM; 9/11; Tech bubble

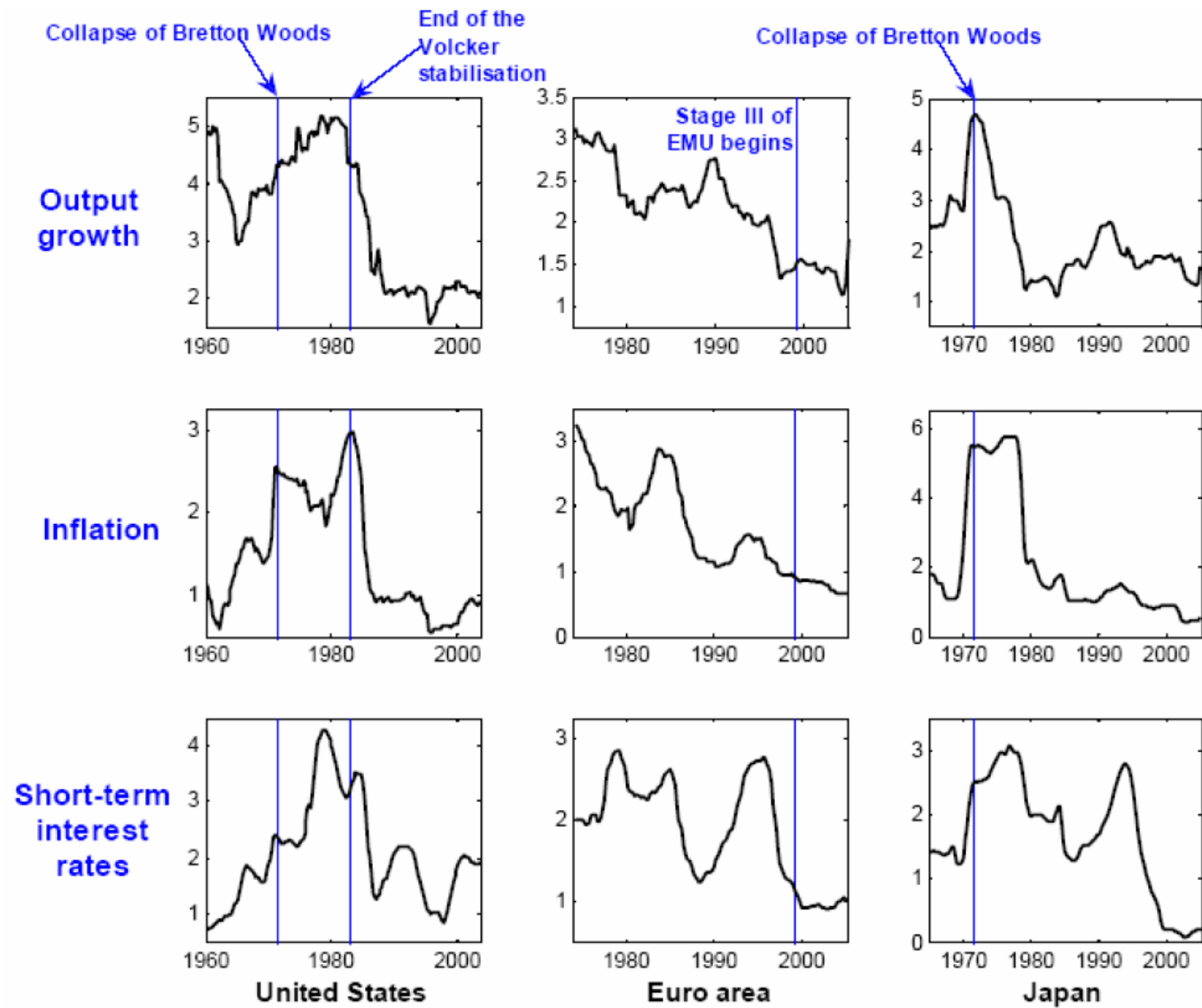
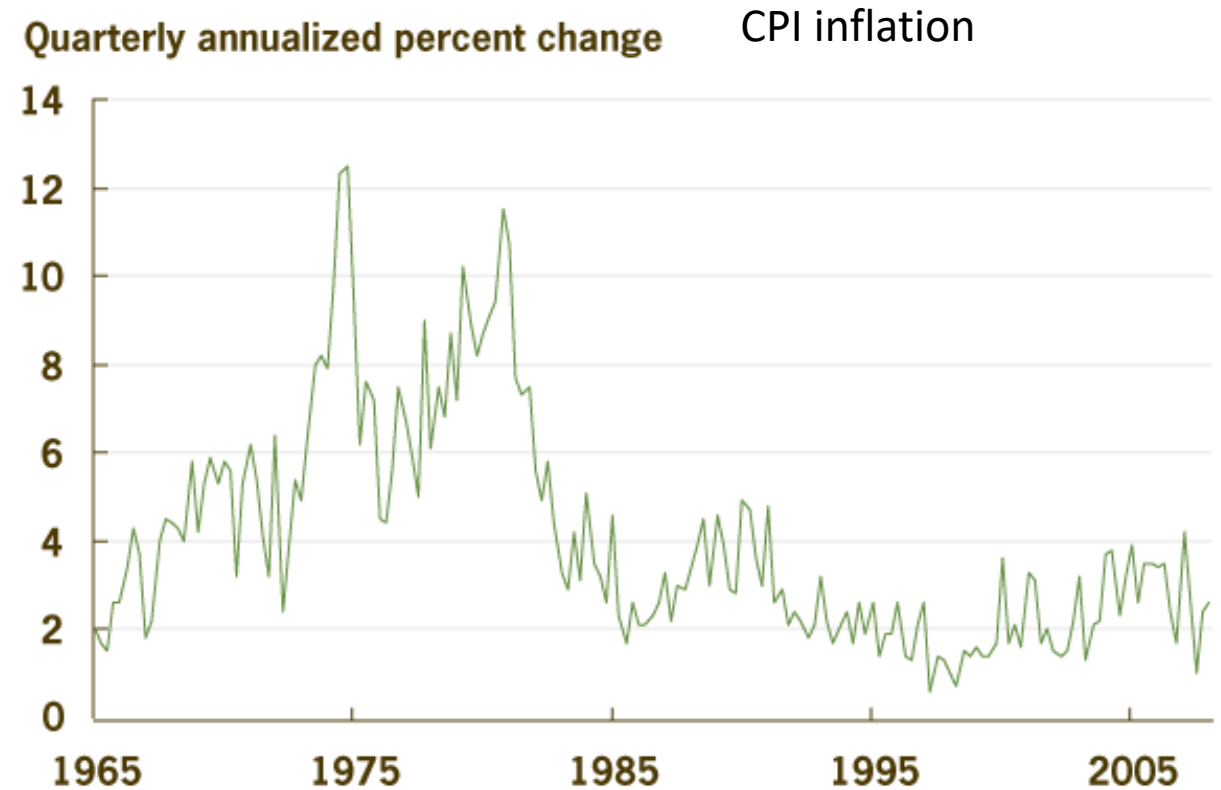
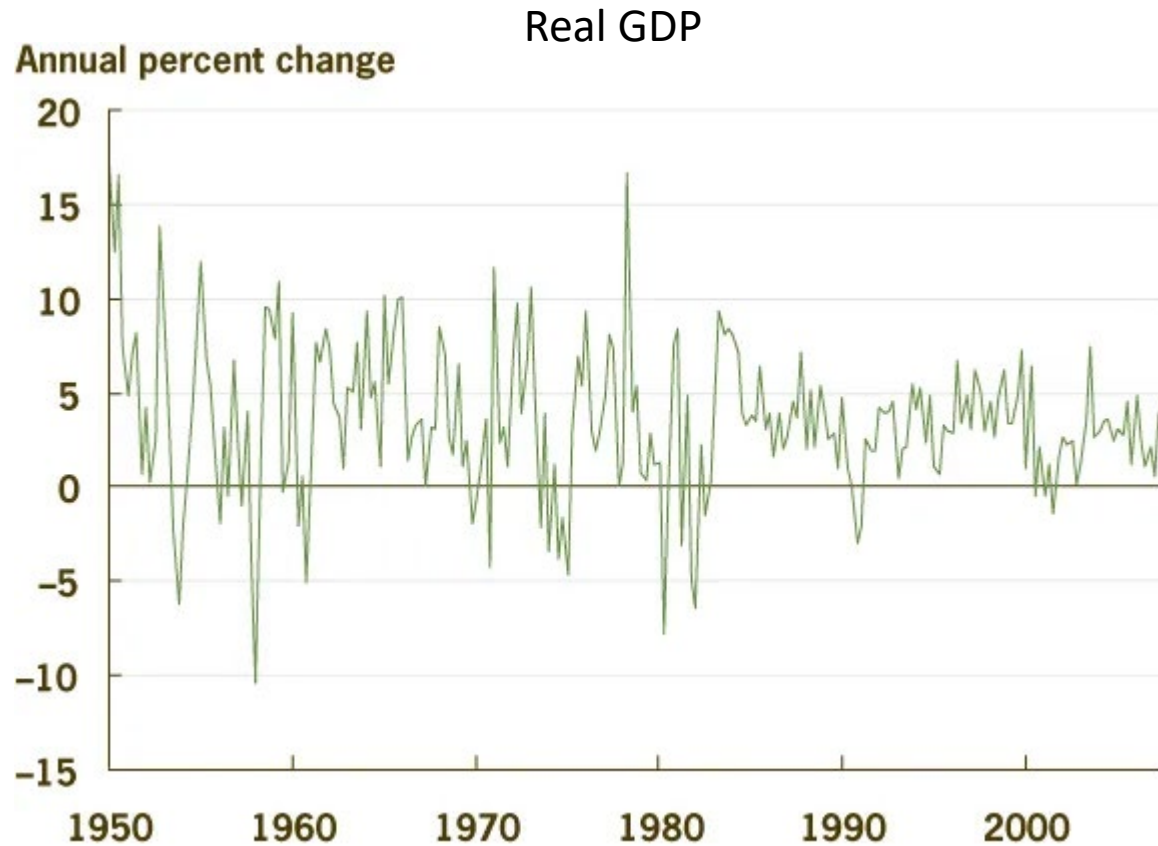


Figure 1.1 Rolling standard deviations of output growth, inflation and short-term interest rates in the United States, the Euro area, and Japan (centered 8-year rolling samples)

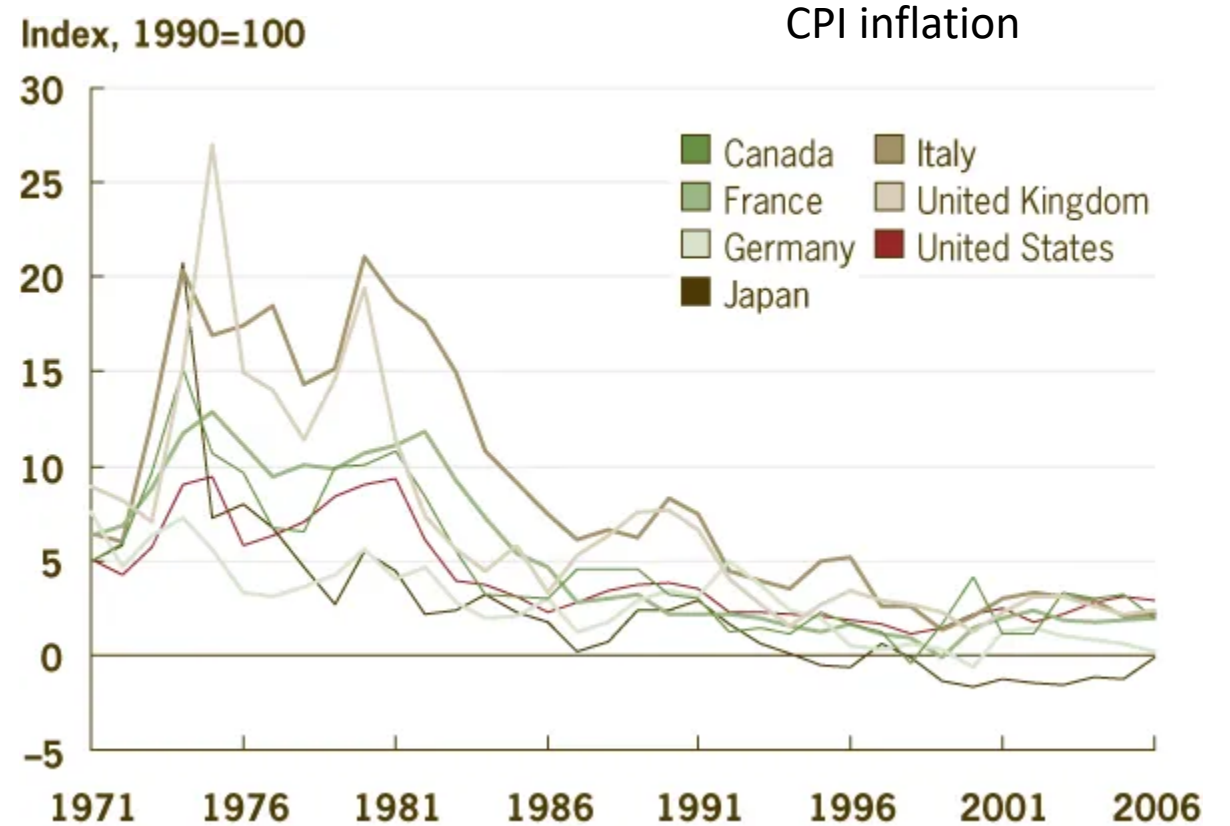
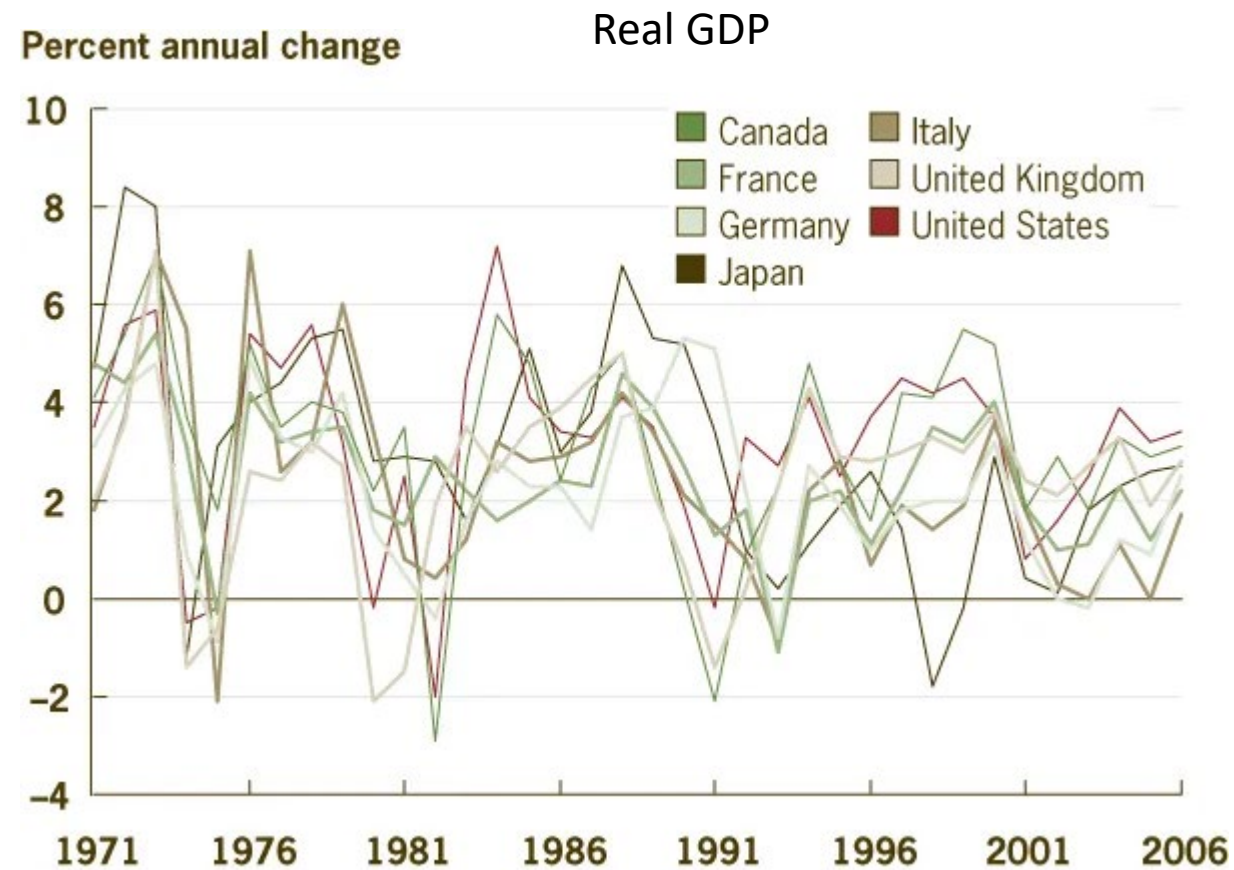
Source: Benati L and C Goodhart

# Great Moderation in the US



Source: Pescatori (2008), Federal Reserve Bank of Cleveland

# Great Moderation, other countries

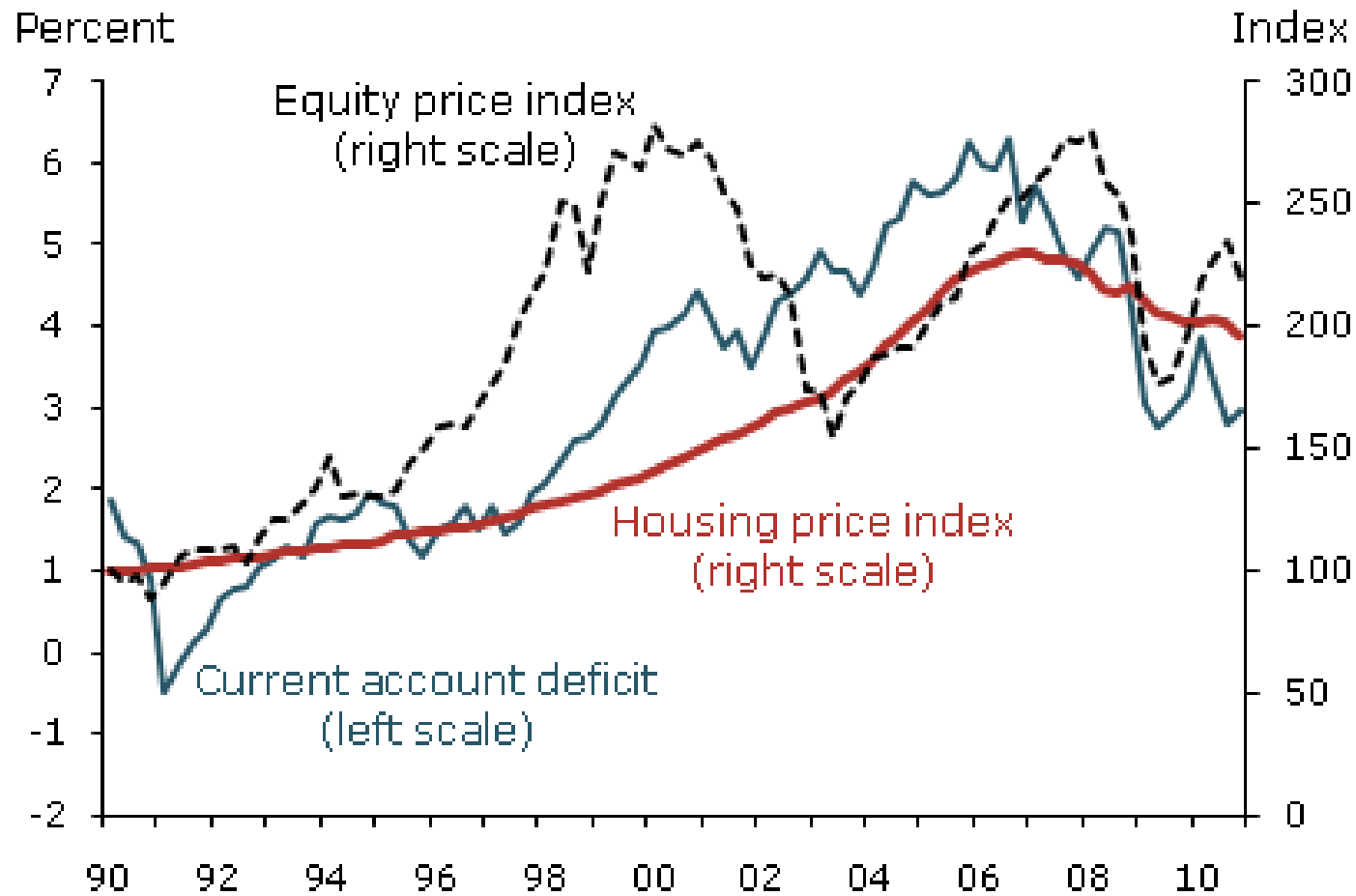


Source: Pescatori (2008), Federal Reserve Bank of Cleveland

## S 6.5.1. The NICE period, the “Great Moderation” (2/3)

- Stability of prices pari passu with financial markets volatility and asset prices significant increases
  - IT focus on CPI or core CPI and not on asset prices; should IT react to them?
  - FED Chair Greenspan against “leaning”, for “cleaning”
  - Too much uncertainty about “right” asset price; unpopular to act and which timing; better mop-up after; protecting financial markets from crises and severe downturns (Greenpan’s “put”)
- CB had found with IT a recipe for success; recognition and credibility in general public; on top of IT, global macro conjuncture favorable (China, India) and upsurge in productivity (Information Technology)

# US asset prices during the Great Moderation



Source: Federal Reserve Bank of San Francisco (2011)

## S 6.5.1. The NICE period, the “Great Moderation” (3/3)

- Great Moderation:
  - Lower inflation, stable growth and low s.d. of macro variables
  - Reduction of uncertainty, risk-premia and re-anchoring of expectations
- Causes (beyond credibility of new IT regime):
  - Removal of CB (FED) MP action from “indeterminacy region” (after long period of CB weak anti-inflation stance, not clear what MP stance prevails)
  - Structural changes (“good policy or good luck”): move from more volatile agricultural production structure toward manufacturing and services
  - Contribution of entrance of China and India in forming global pricing of manufacturing and services; downward pressure transmission to all

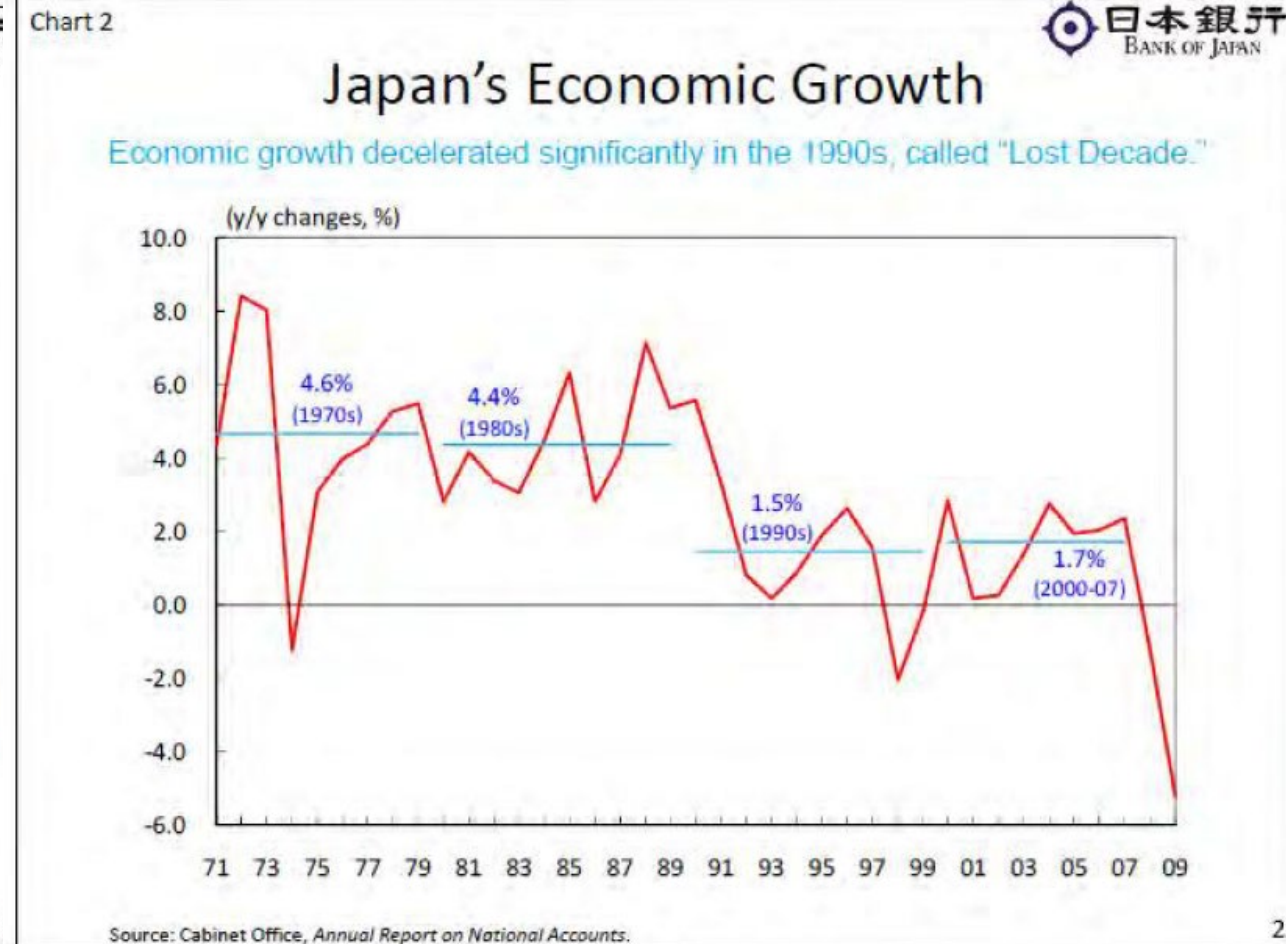
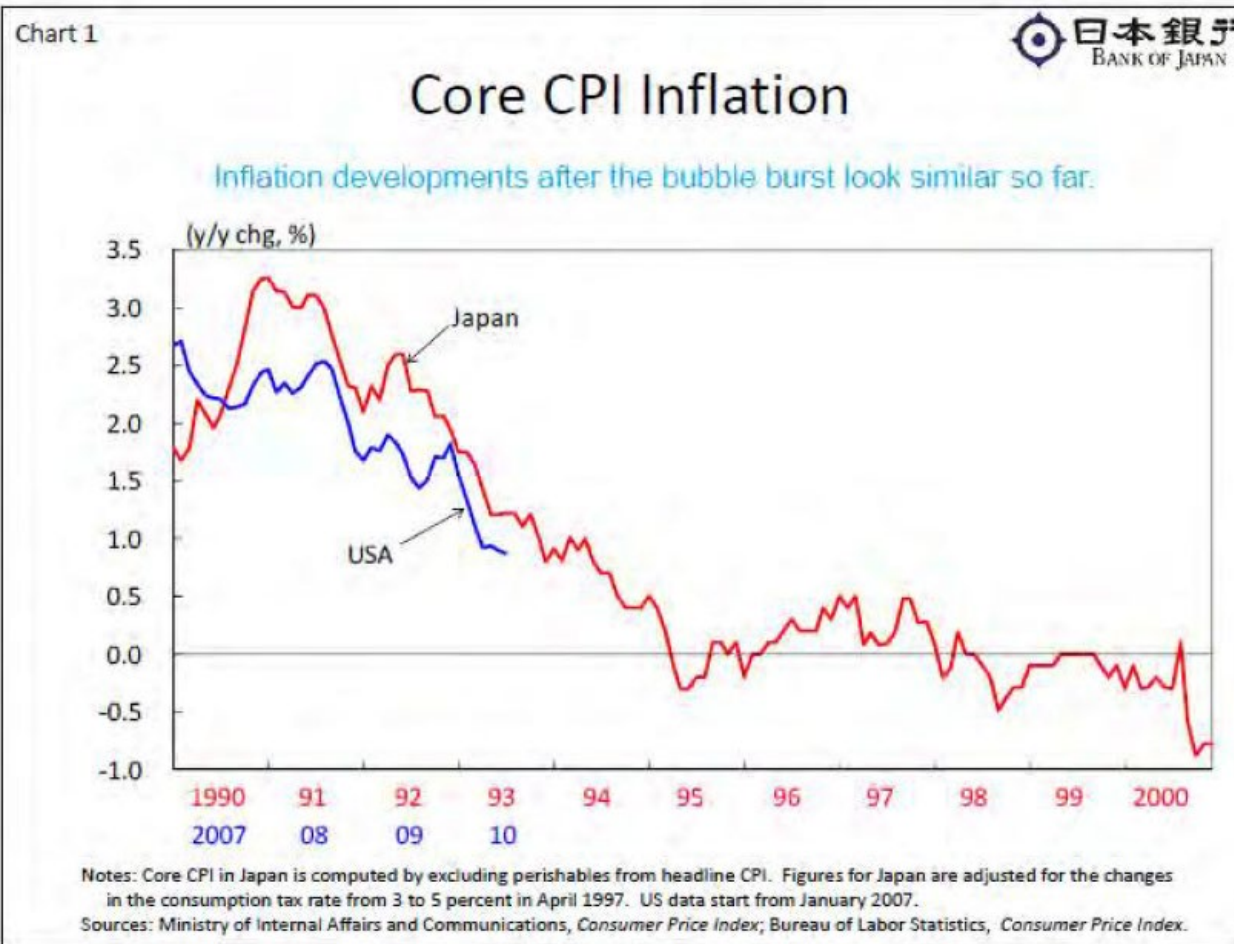
## S 6.5.2. Europe and the Euro

- After ERM crisis (1992), move toward single federal currency (Euro, adopted 1999, implemented 2002) and CB (ECB, endorsed IT), despite maintaining national fiscal policies (skepticism in US about inconsistency)
- Desinflation in Europe (since 1980s), then with ECB:
  - Decline in national inflation rates and end of inflation persistence
  - Reduction of cross-national dispersion of inflation rates
  - Anchoring long-term inflation expectations
  - Borrowing credibility from Bundesbank (ECB location, Presidency nomination)
  - Convergence of risk premia (till the Euro debt crisis)

## S 6.5.3 Japan in the 1990s and 2000s

- “Lost decade” instead of NICE decade? Instead of “inflation” problem, Japan had “deflation” problem and episodes of negative growth. First AE encountering the ZLB issue. Explanations and criticisms:
- Structural and cultural “rigidities”?
  - “Conservatism” in bankruptcy laws and procedures hard to eliminate non-performing banks and firms
  - “Too little too late” policy responses
  - But Japan had large current account surplus, cooperative social political environment, very low interest rates; if problems were on supply side, corresponding effect would be “inflation” not “deflation”

# Japan “lost decade”: risk of deflation



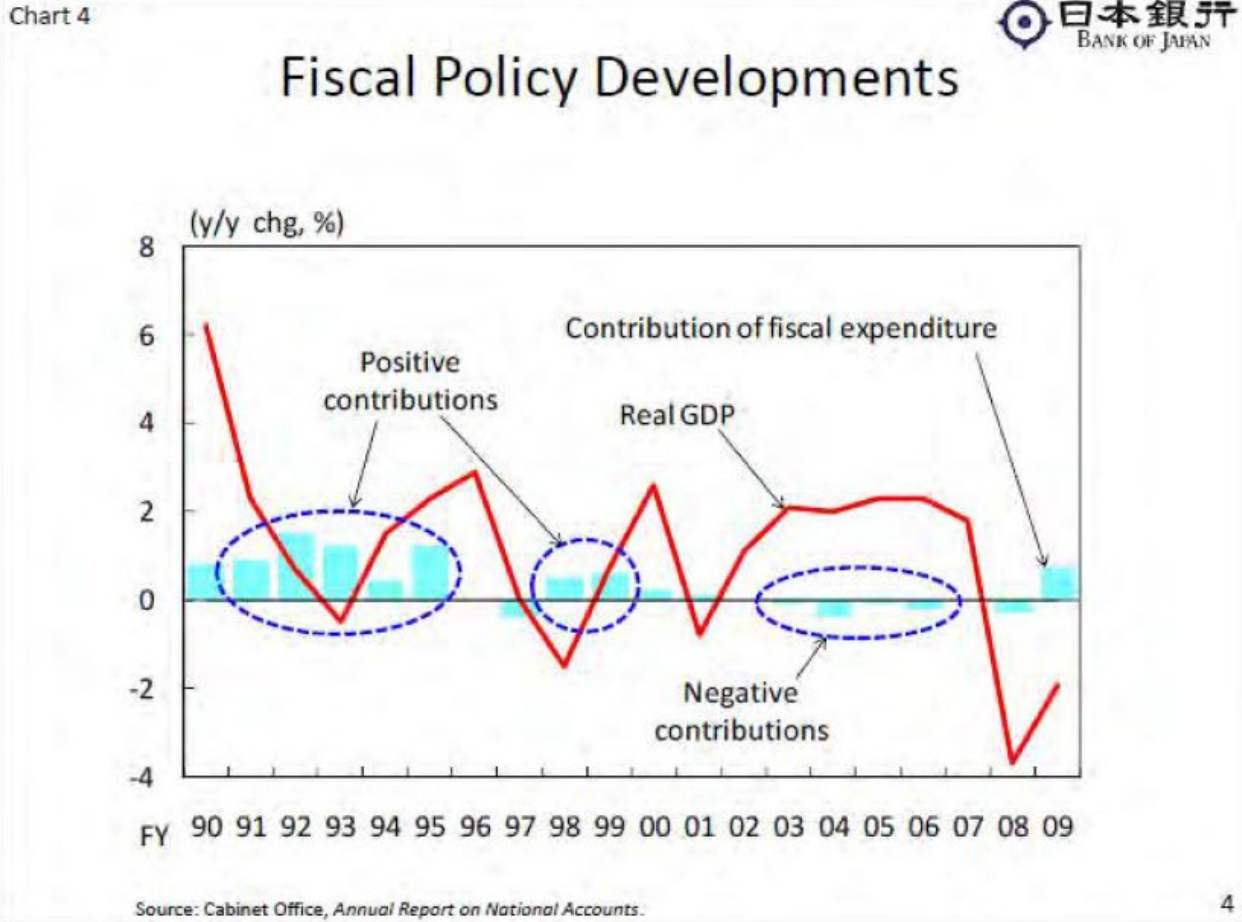
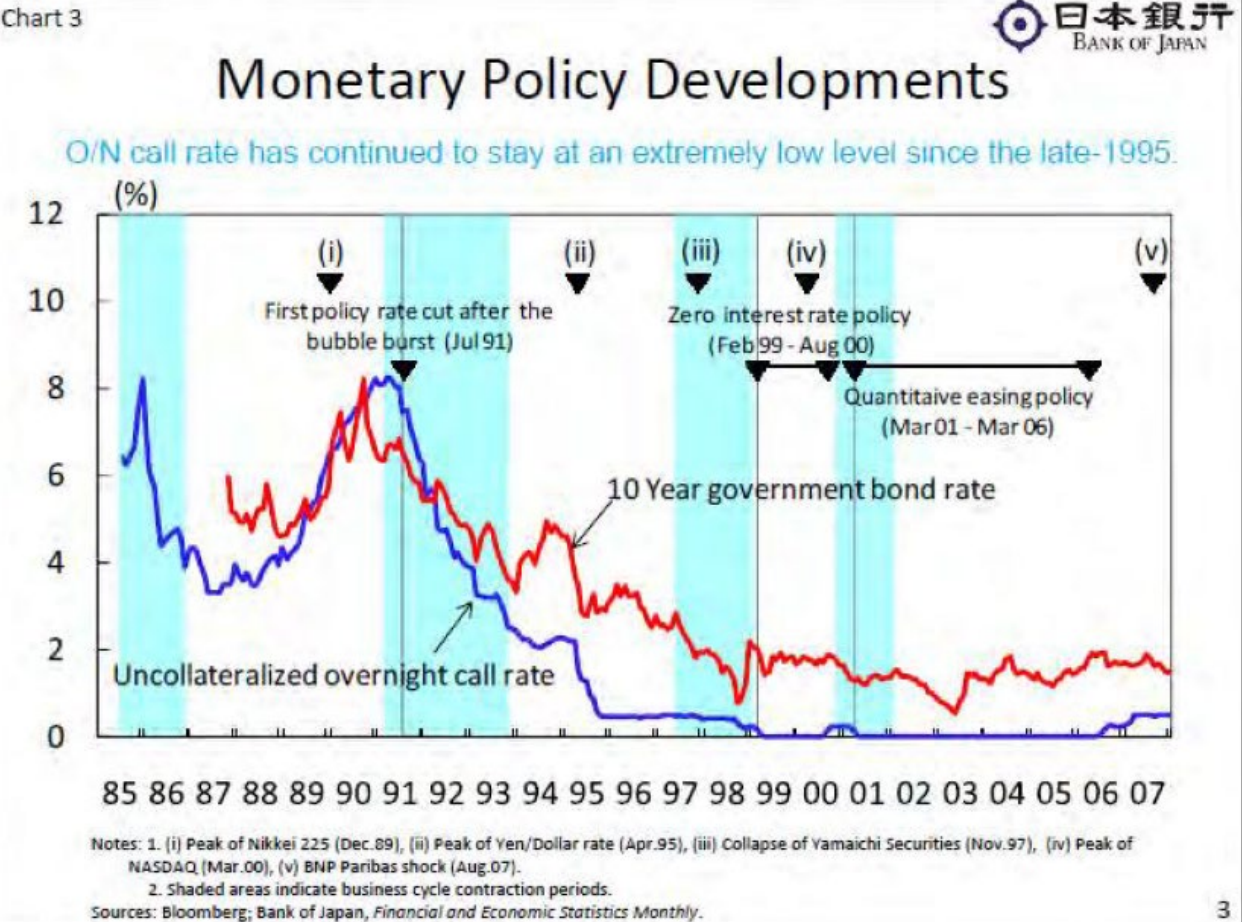
## S 6.5.3 Japan in the 1990s and 2000s; Criticism of BoJ:

- During late 1980s inflation, not fully addressed, leading to asset price bubble;
- Apparent aim at “pricking” stock market and desinflate led to collapse;
- Allowed Yen appreciation despite recession;
- Not fast to use UMP after reaching ZLB, including “helicopter M”, transfers;
- Not enough transparency of implicit IT framework (Krugman); and therefore no higher visible IT target to anchor expectations

# BoJ advocates: not in BoJ mandate to take risks to credibility in 1990s

But measures taken later (ZIRP and QE)

- Rate: Uncollateralized overnight call at 0.02-0.03%
- After ZIRP, QE: use outstanding level of banks current account balances at the BoJ; ample liquidity provision; Outright purchase of Gov bonds
- Core CPI at 0.5% Jan 2005; QE raised inflation expectations; financial perceptions



## Policy Measures Taken by the BOJ

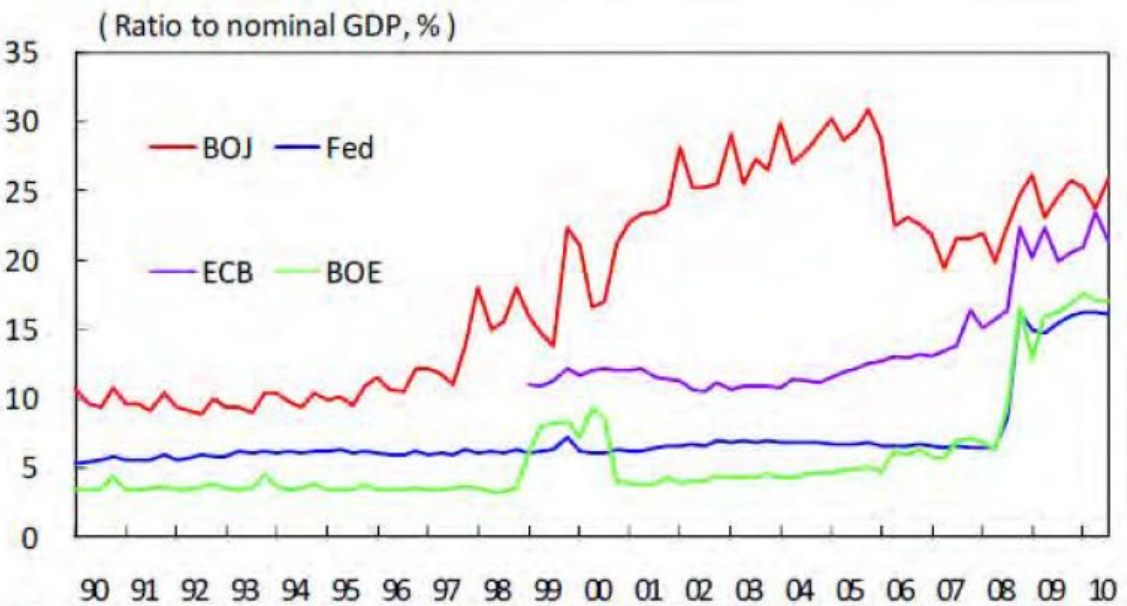
- **Monetary Policy Framework:**
  - **Zero interest rate policy (Feb 1999-Aug 2000)**
    - Guiding O/N call rates down to virtually zero
    - Commit to zero rate until deflationary concerns are dispelled
  - **Quantitative easing policy (Mar 2001-Mar 2006)**
    - Shifting operational target from O/N call rate to reserves
    - Commit to reserve targeting until CPI inflation becomes stably zero or above
- **Financial Assets Purchased:**
  - **Outright purchase of JGBs** (Cumulative amount during the QEP, 13% of GDP; Outstanding amount at Mar 10, 2006, 13% of GDP)
  - **Credit Easing**
    - Outright purchase of ABCPs and ABSs
    - Equity purchase from financial institutions
    - CP repos

Chart 14



# Central Bank Balance Sheet Size

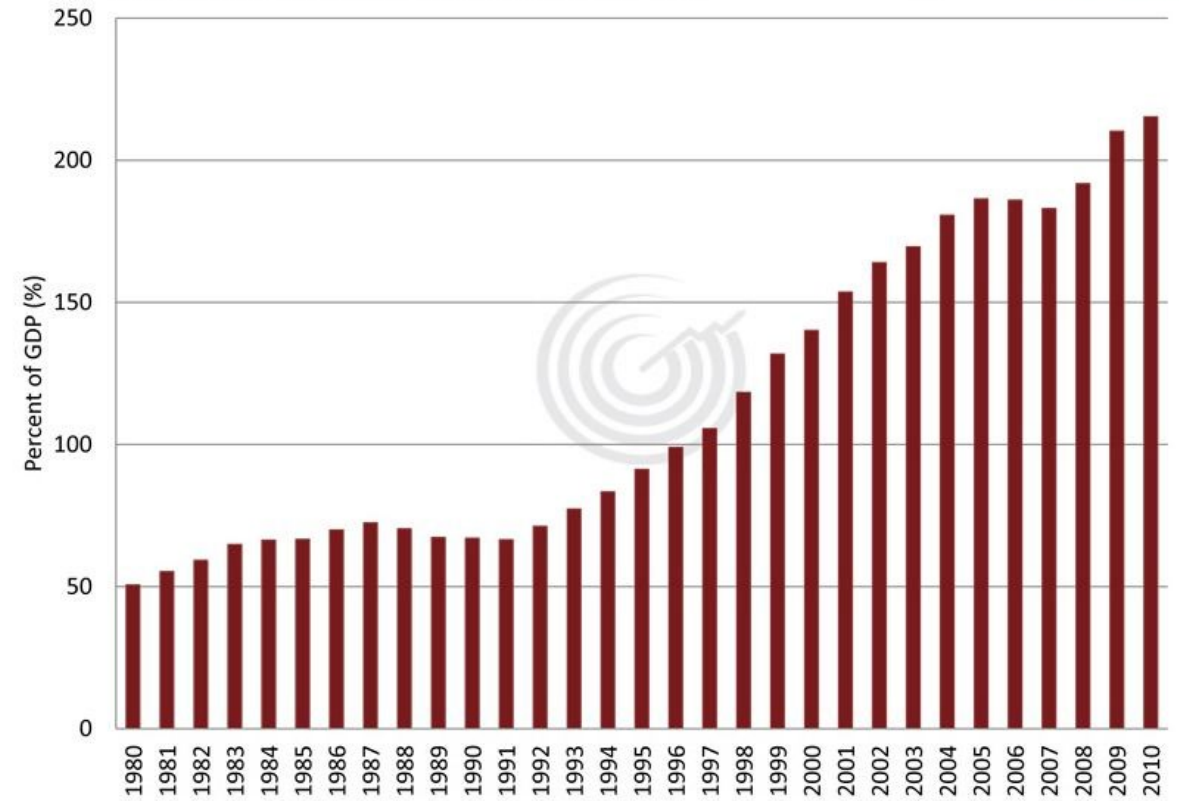
Relative size of central bank balance sheet to nominal GDP expanded most significantly in Japan from 1995 to 2006.



Notes: 1. The latest figures are the ratio of balance sheet size at the end of August, 2010 to nominal GDP for the second quarter of 2010.  
2. The BOE's balance sheet increased temporarily from 1999 to 2000 reflecting a technical factor associated with the BOE's participation to the TARGET system, the settlement and clearing system for euro.

Sources: Bank of Japan, Board of Governors of the Federal Reserve System, European Central Bank, Bank of England.

## Japanese Government Gross Debt/GDP



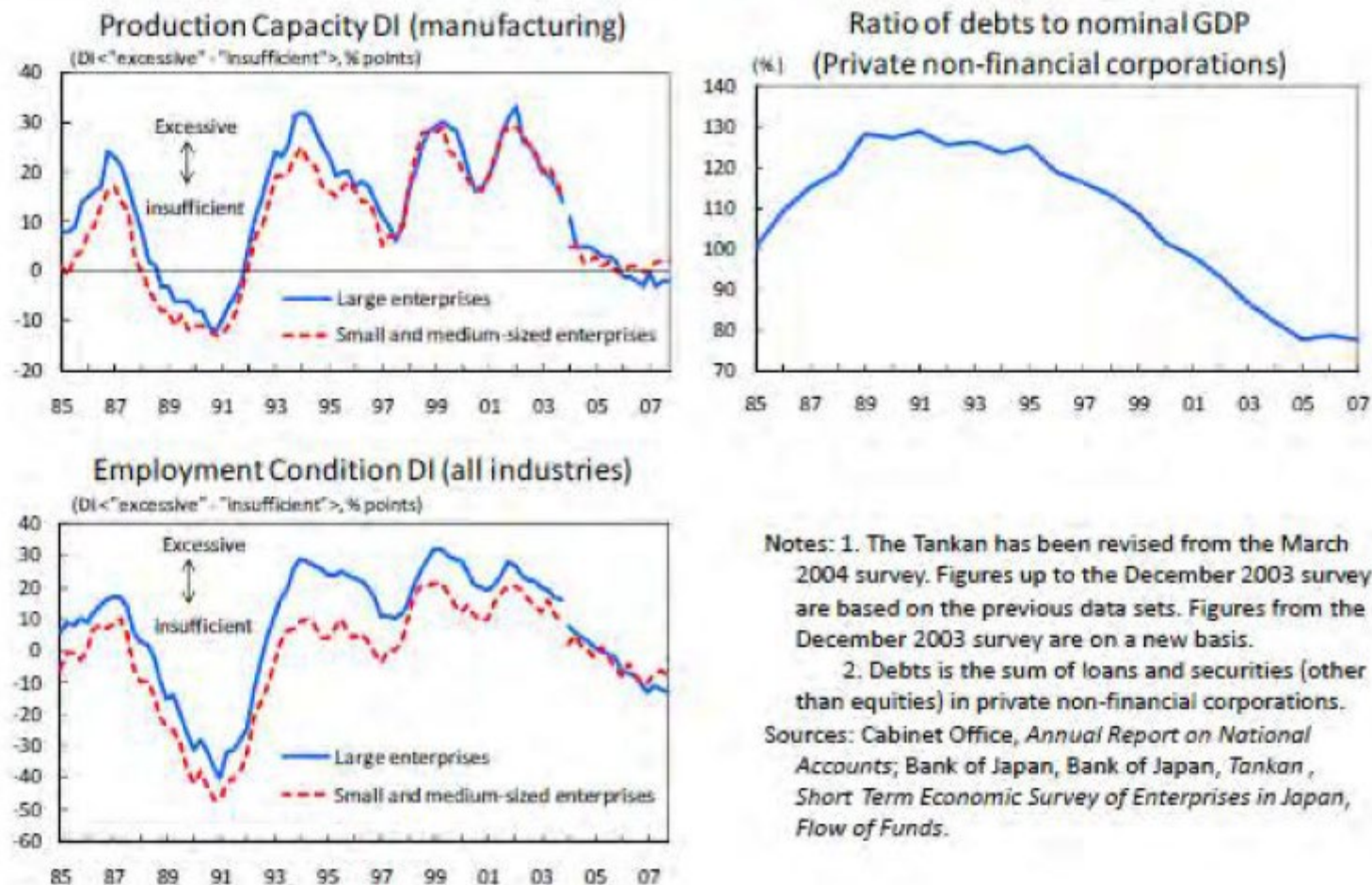
© Casey Research 2012

## S 6.5.3 Japan in the 1990s and 2000s

- But QE, although unprecedented, failed to increase bank lending
- Reluctance of banks to extend loans / problem of supply of credit
  - Risk-aversion, too much leverage, too much NPLs; deposit withdraws
  - Lending to old clients, “zombie cies”, betting on resurrection of asset prices
- Balance sheet recession / problem of demand for credit
  - Effect of collapse of asset values in HH and corporate balance sheets
  - With negative net worth, cies deleveraged; cies rebuilt buffers; HH used savings
- Summary: combination of debt deflation; insufficient QE volume, targeting banks reserves, little traction on HH and firms

# “Three Excesses”

Resolution of “three excesses” came before the full-fledged recovery.



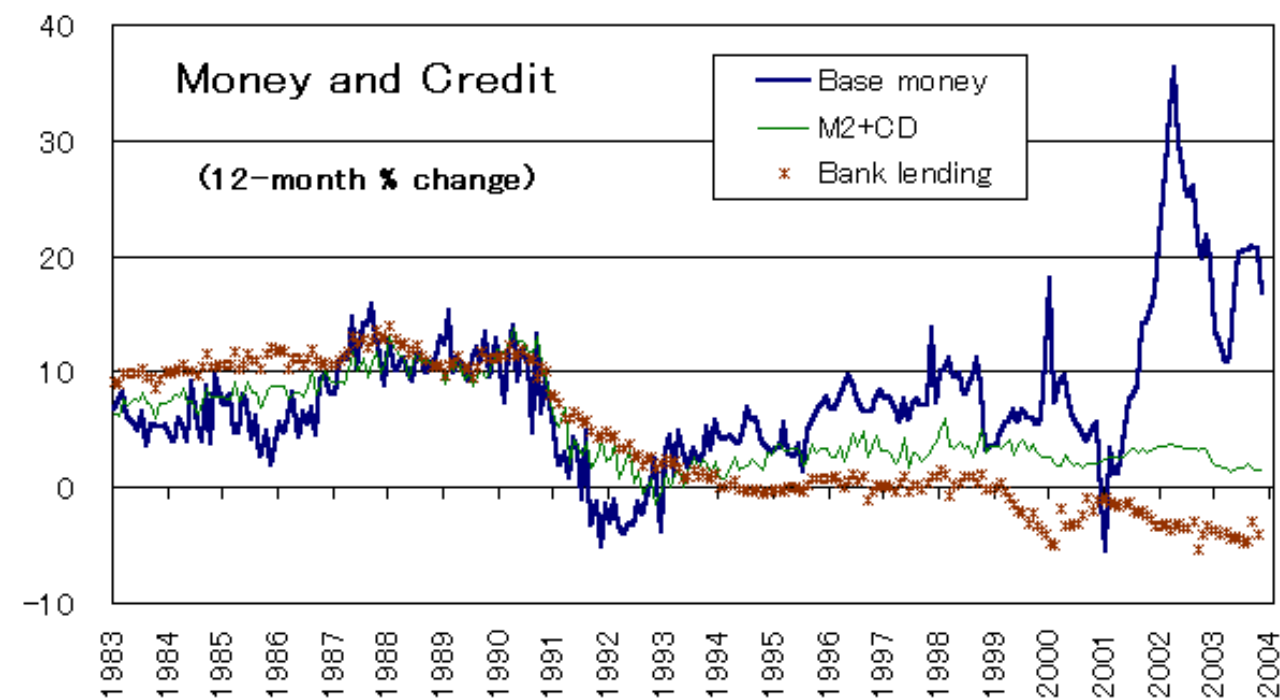
# Japan “lost decade”

Figure 1.2. Corporate Survey: Return on Assets



Sources: Ministry of Finance; and IMF staff calculations.

# Japan “lost decade”



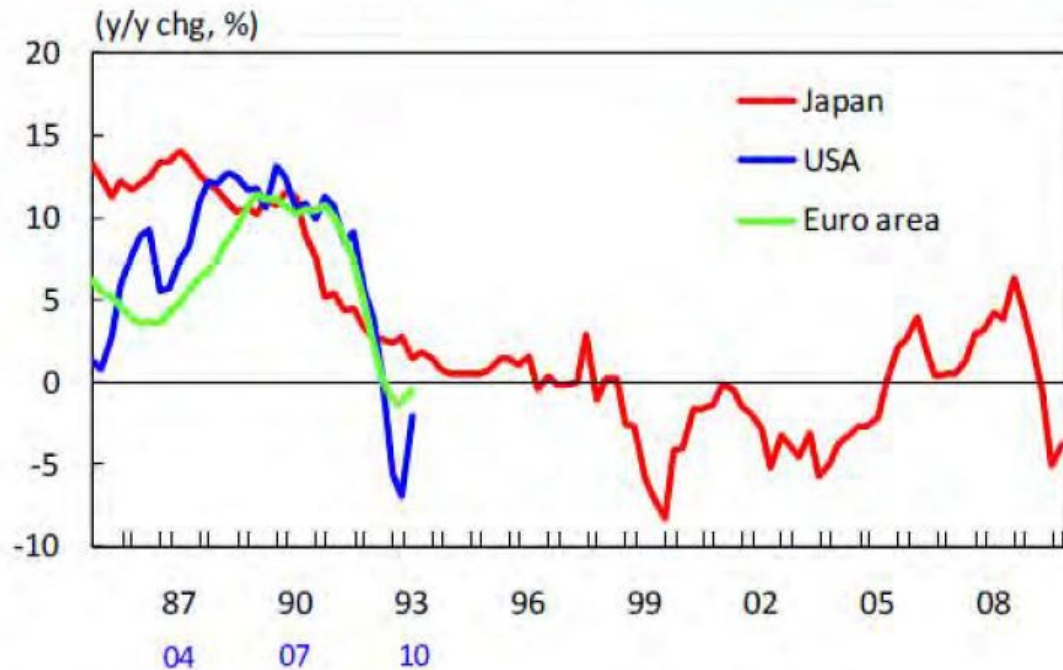
Source: <https://www.grips.ac.jp>

Chart 17



## Bank Loans

Bank loans declined significantly after the bubble burst, and remained stagnant thereafter for a long period of time.



Sources: Bank of Japan, Board of Governors of the Federal Reserve System, European Central Bank

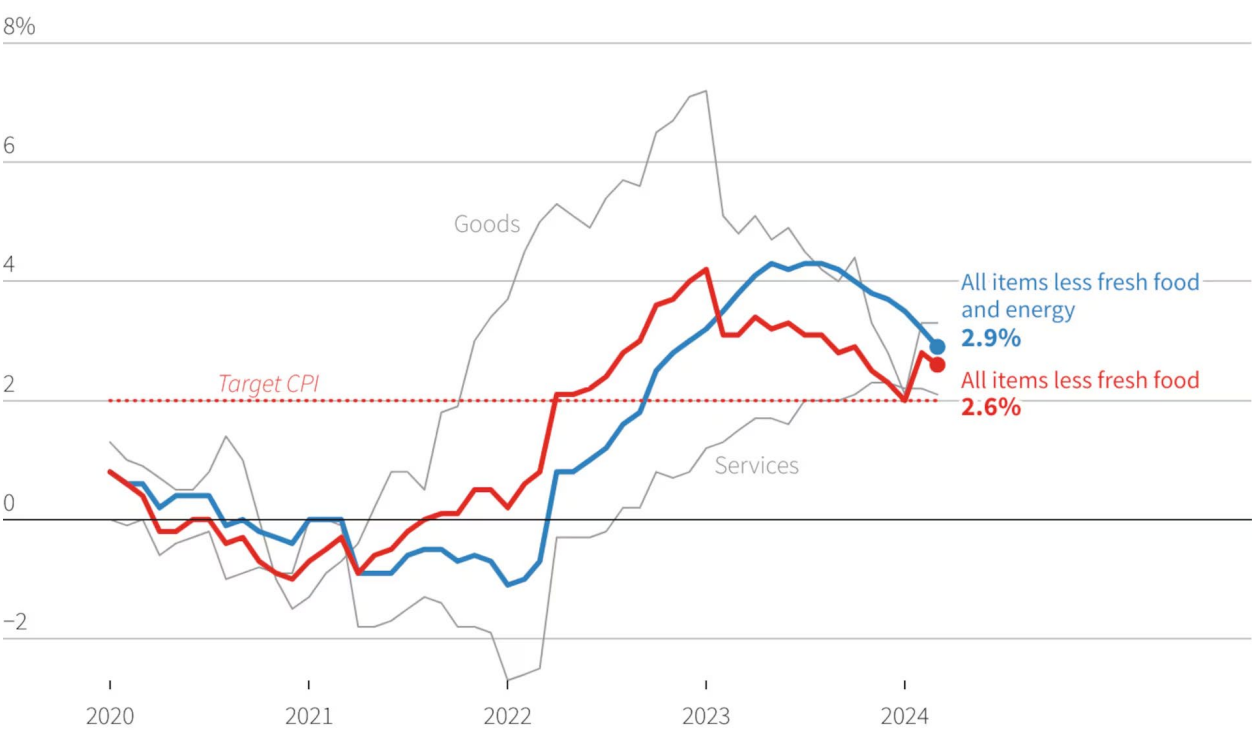
17

# Japan's recovery?

- Reforms (corporate governance, labor markets –life long employment--, social benefits); “new” social compact?
- Adoption of IT (2013), after delays, anchoring expectations at last?
- The Tokyo Stock Price Index (TOPIX) hit its highest point since 1990
- Domestic demand recovery, rising prices and wage growth.
  - Inflation is hitting levels above the Bank of Japan's (BoJ) 2% target;
  - Higher food and energy costs fueled the initial inflation ascent—consistent with global trends—but price increases have broadened out as 2023 has progressed.
  - Services prices, accelerated reflecting the strong increase in hotel demand amid recent re-opening momentum and the recovery in travel-related consumption. Rail fares, delivery fees and restaurant prices have all climbed higher.
  - Wages under Japan's “Shunto” negotiations between labor unions and companies have resulted in negotiated wage hikes well above usual levels. Data suggest the base pay rise (+2.12%) agreed in spring is the largest since 1992 and headline wage growth (+3.58%) is the highest since 1993.<sup>1</sup> The extent to which this wage growth will lift inflation is a key factor for monetary policy going forward.
- Now: new sources of growth (IT, robotics, new technologies, green growth cycle)? Weaker Yen favors exporters but pass-through on inflation?

# Japan's core inflation slows

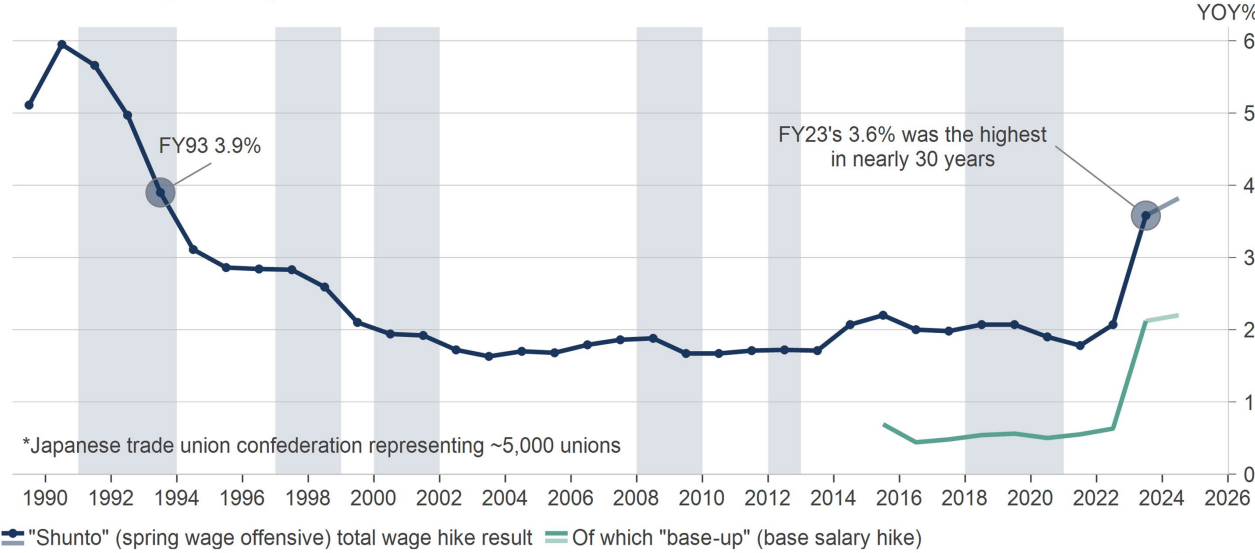
Japan's core inflation rose 2.6% in March due to mild rises in food prices and continues to stay above the central bank's 2% target. Another index excluding fuel costs rose 2.9%.



Source: LSEG Datastream | Reuters, April 19, 2024 | By Pasit Kongkunakornkul

## Japan's Rengo\* data on wage hikes

Sources: Rengo through FY23, FY24 forecasts based on think tank estimates reported Jan 1



\*Japanese trade union confederation representing ~5,000 unions

— "Shunto" (spring wage offensive) total wage hike result — Of which "base-up" (base salary hike)

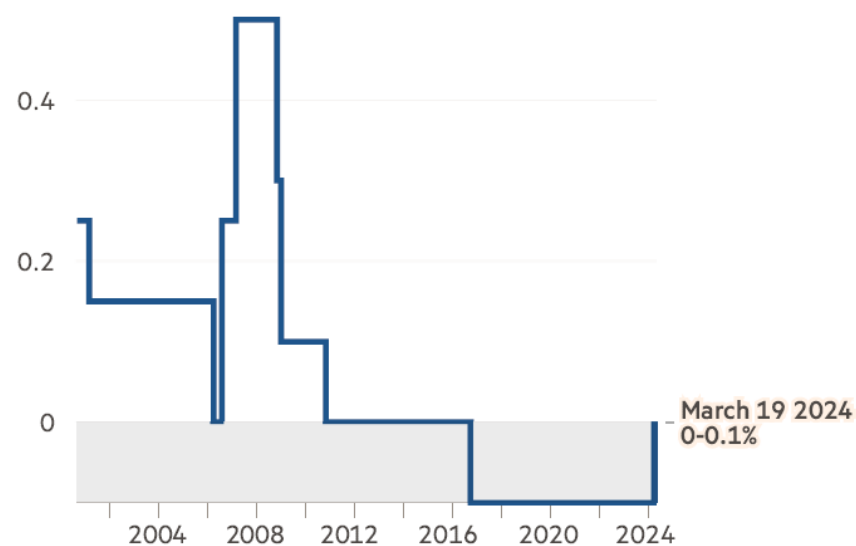
MACROBOND

# Japan “recovery”?



Bank of Japan has ended its negative interest rate policy after eight years

Bank of Japan overnight interest rate guidance (%)



## S 6.5.5 IT in EMEs

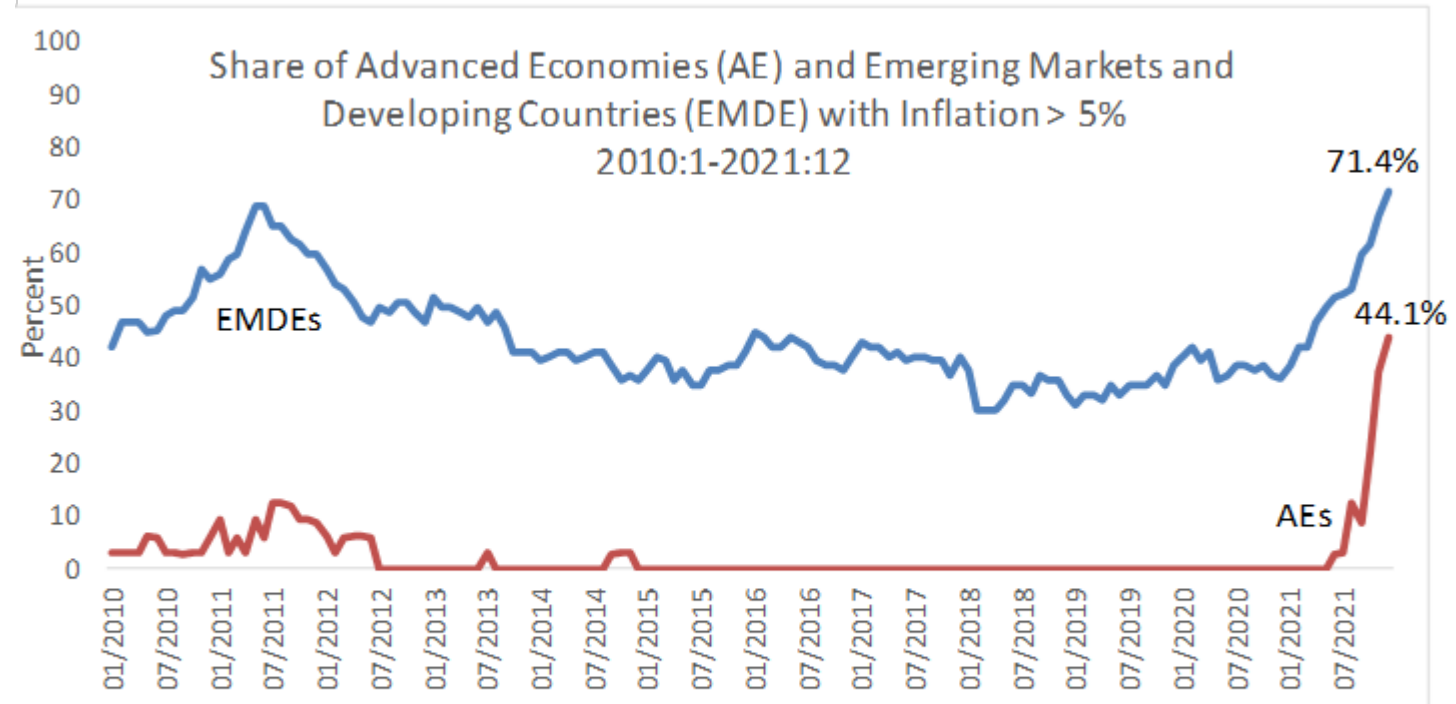
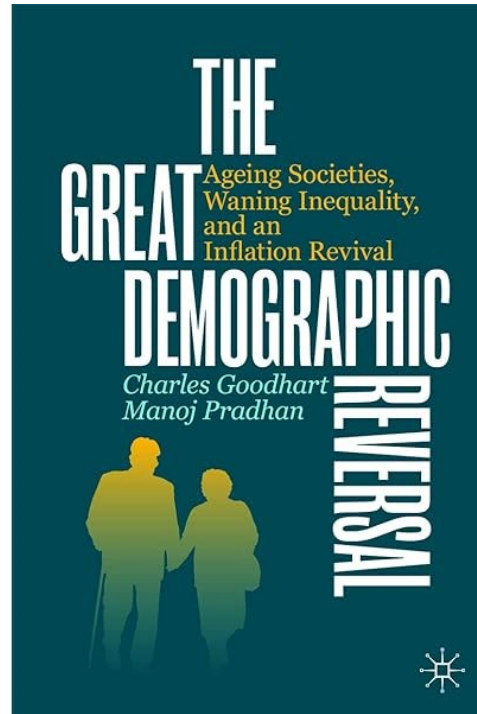
- Skepticism EMEs could adopt IT regimes, pre-conditions absent:
  - Too high inflation at starting point, and persistence
  - CB independence and credibility; fiscal dominance and expansionary bias
  - Technical capability to forecast inflation
  - Other institutional fragilities (rules of law, etc)
- Many EMEs adopted IT regimes in the 1990s-2000s
  - 12 EMEs adopted IT between 1998-2001

## S 6.6. An evaluation of IT

- S 6.6.1. The Great Success (of the Great Moderation) but the role of globalization (China and India)
- S 6.6.2. Sacrifice ratios, anchoring expectations and CB credibility
- S 6.6.3. Asset prices and financial market developments
- S 6.6.4. Reviews of Monetary Policy Frameworks (FED and ECB)
- S 6.6.5 The challenges leading to the GFC (capital flows, financial instability and EMEs)

# S 6.6.1. The Great Success (of the Great Moderation) but the role of globalization (China and India)

- Deflationary headwinds over the last three decades have been also due to an enormous surge in the world's available labour supply, owing to very favourable demographic trends and the entry of China and Eastern Europe into the world's trading system
- Underlying forces of demography and globalisation will shortly reverse three multi-decade global trends – it will raise inflation and interest rates, but lead to a pullback in inequality.



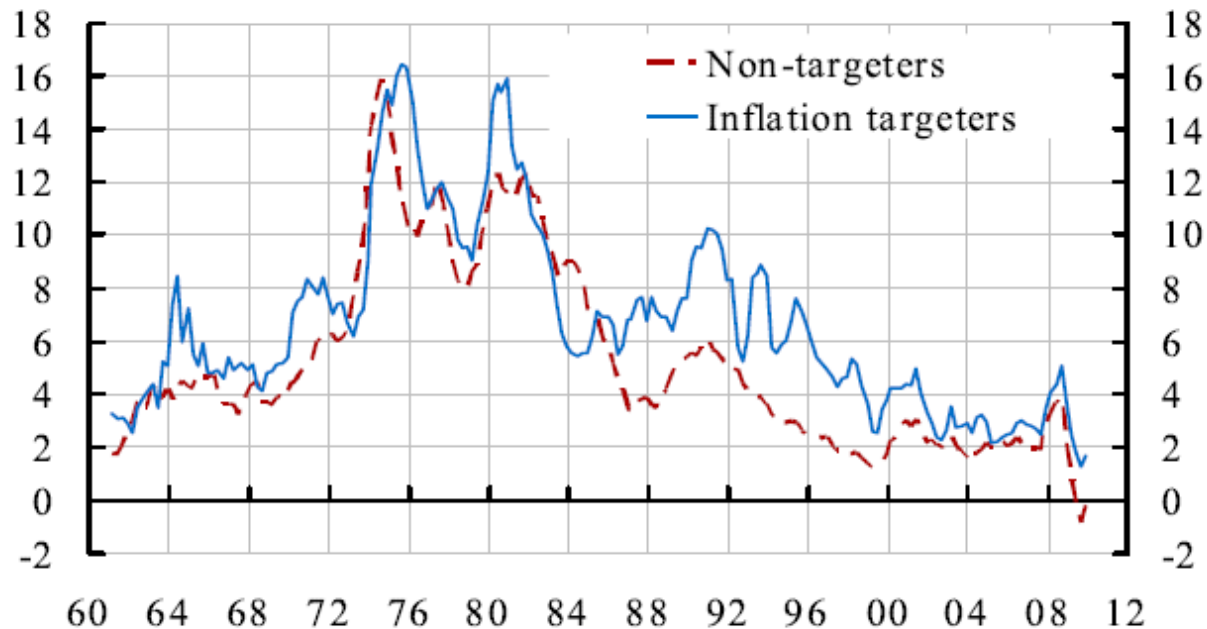
Note: The sample consists of 34 advanced economies and 109 emerging markets and developing countries.

Source: The World Bank (2022)

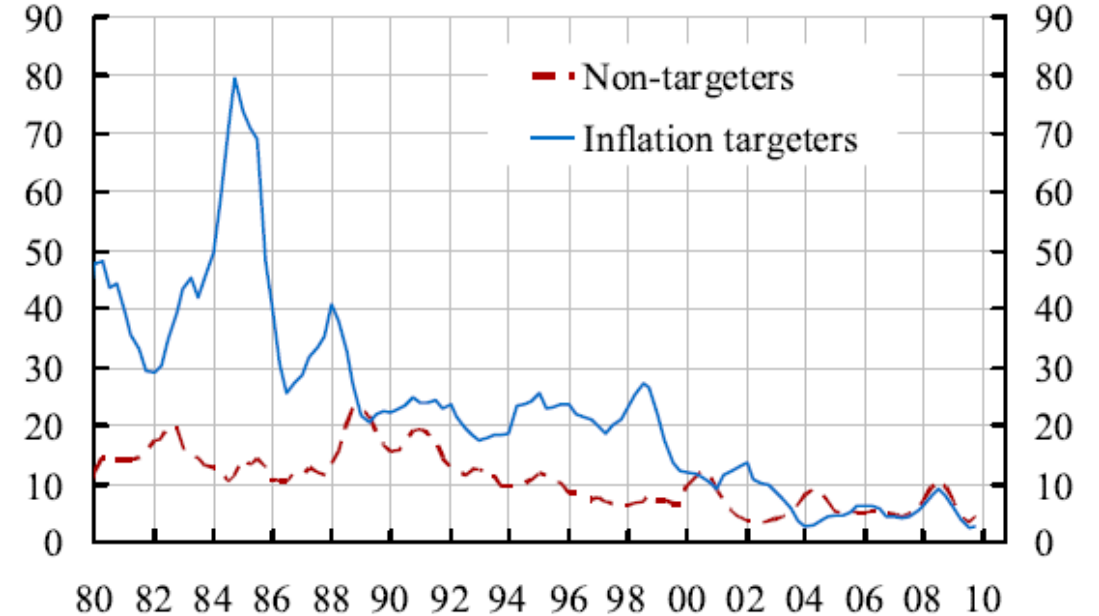
## S 6.6.2. Sacrifice ratios, anchoring expectations and CB credibility

Average annual inflation (% p.a.) in IT and non-IT countries (Source: Svensson (2010))

OECD countries

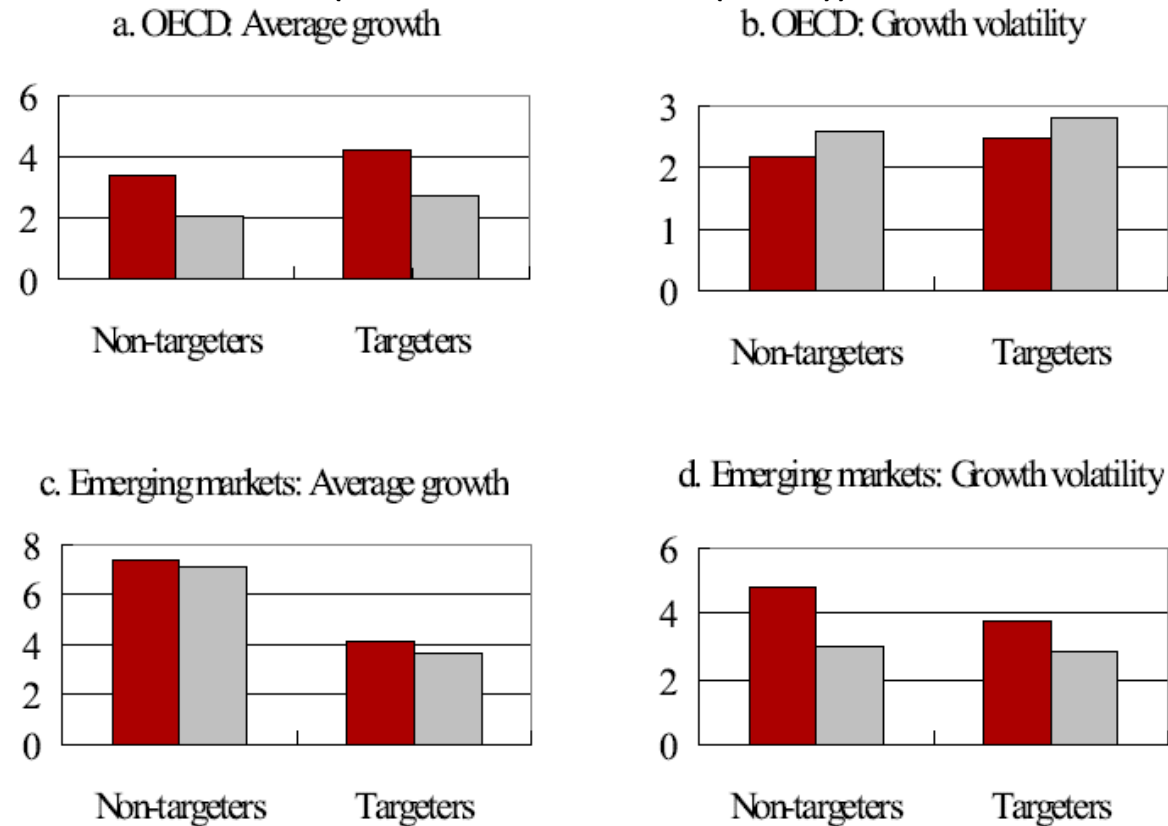


Emerging Market countries



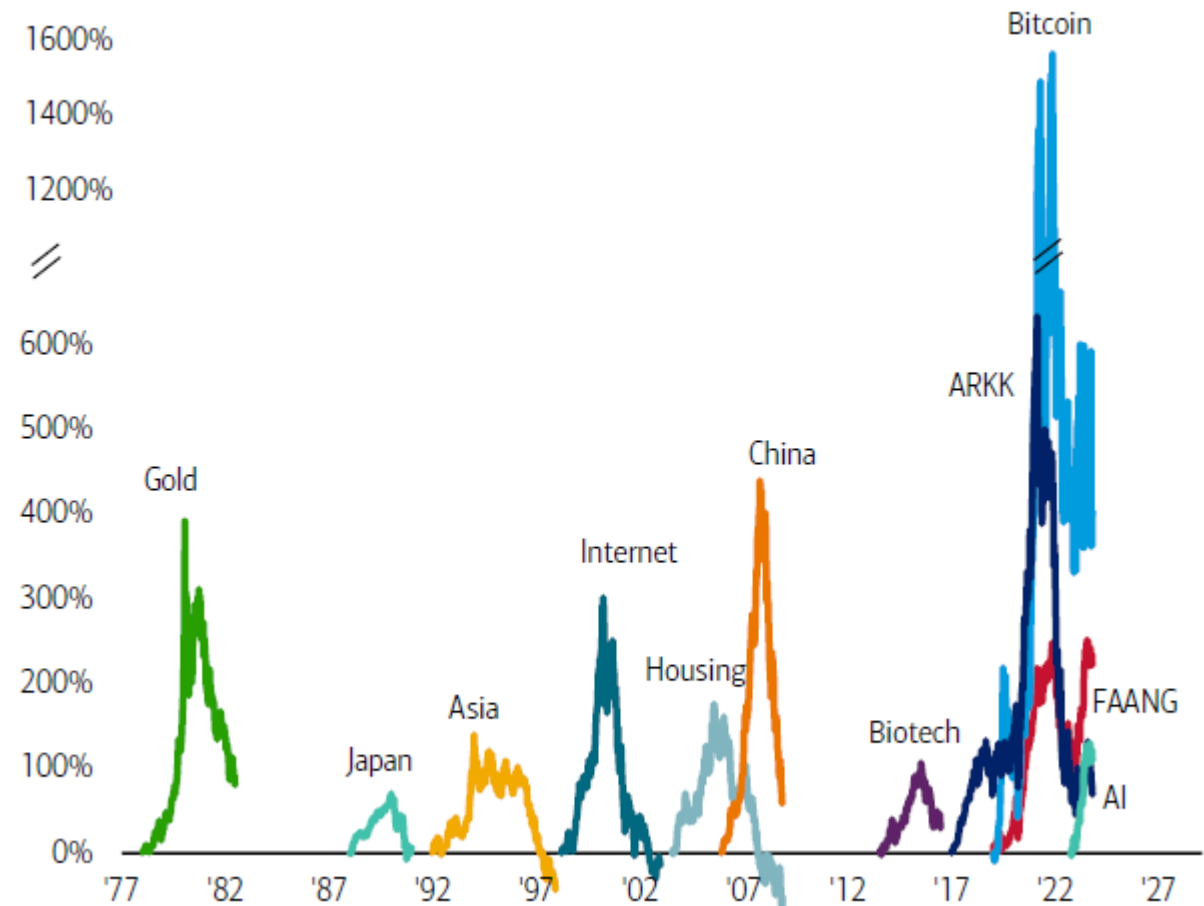
## S 6.6.2. Sacrifice ratios, anchoring expectations and CB credibility

Average annual growth and volatility (% p.a.) in IT and non-IT countries, before IT adoption (red) and after (gray)  
(Source: Svensson (2010))



## S 6.6.3. Asset prices and financial market developments

- Most difficult issue for IT frameworks, rise of financial asset prices (graph pictures rise from initial price in %)
- Repetition of “bubbles” in financial history signals potential issue of financial stability to be considered in IT (more later)
- Magnitude of “bubbles” also related to the size and new nature (global) of financial sectors



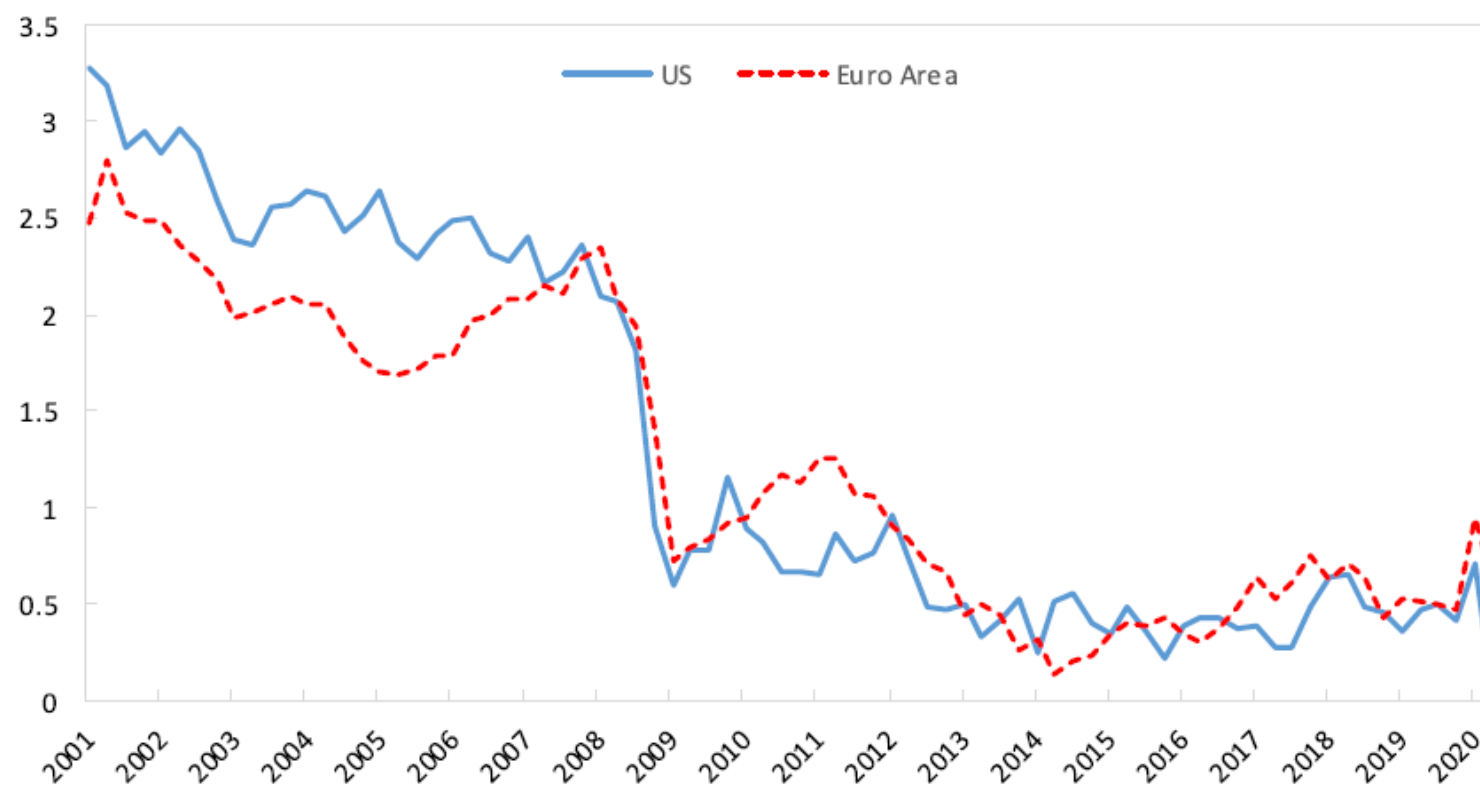
## S 6.6.4. Reviews of Monetary Policy Frameworks (FED 2020 and ECB 2021)

- Motivation, learn from IT regimes outcomes under low inflation
  - Trending low  $r^*$  with risks of the ZLB; sets inflation expectations below target
  - Flattening of Phillips curve, more policy “room” to run “hotter” economy
  - Make-up for past below target outcome (tolerance), need clear communication
  - New challenges (eg., ECB -Climate Change considerations in MP)
- Some suggested results
  - FED : new flex average IT framework (temporary price-level target as make-up)
  - ECB: clear symmetric point target of around 2% not “below, but close to, 2%” to help better anchor inflation expectations; take into account CC in MP action

# Trending low $r^*$

## Equilibrium Real Interest Rate

(In percent)



Source: IMF staff calculations based on Kathryn Holston, Thomas Laubach, and John C. Williams, *Journal of International Economics*, 2017

# Lower inflation expectations

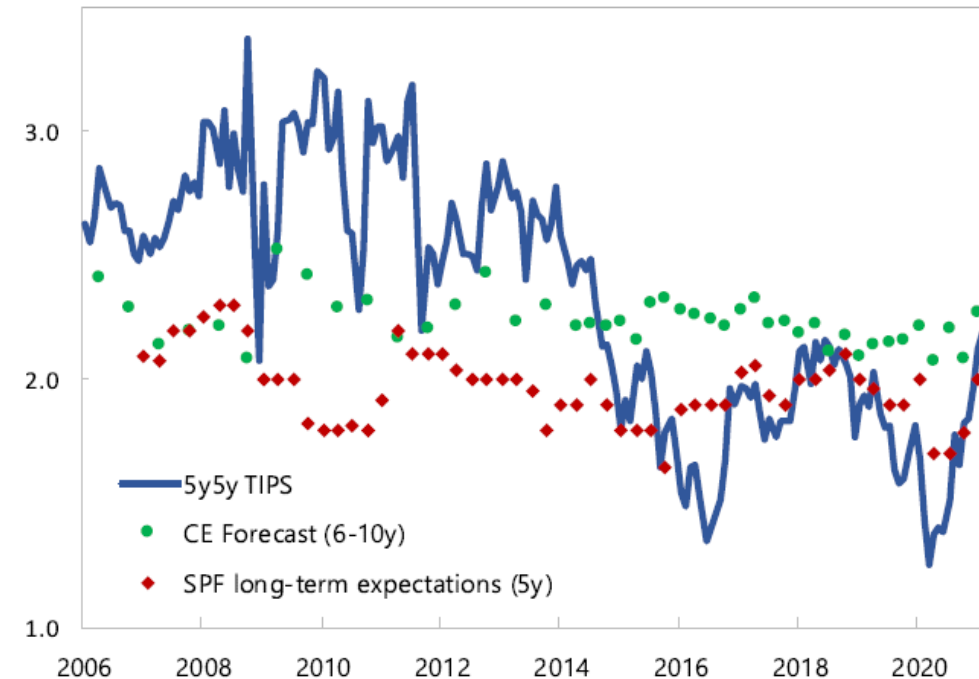
**Euro area**



Sources: Bloomberg Finance L.P.; ECB; and Consensus Economics.

Notes: The figure shows the 5-year forward inflation-linked swap rate in 5 years (blue line); 6-10 years Consensus Forecasts (green dots); and 5 year ahead expectations from the ECB's Survey of Professional Forecasters (red dots).

**US**



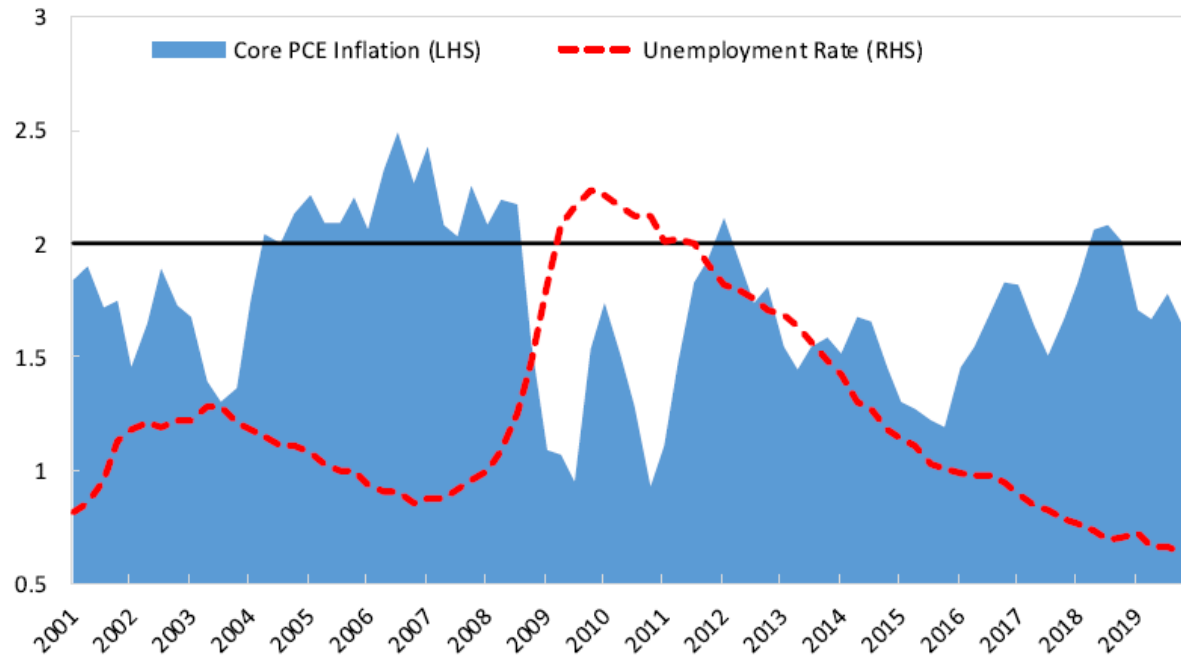
Sources: Bloomberg Finance L.P.; Federal Reserve Bank of Philadelphia; and Consensus Economics.

Notes: The figure shows the 5-year forward breakeven inflation rate (blue line); 6-10 years Consensus Forecasts (green dots); and 5 year ahead expectations from the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters (red dots).

# Flat Phillips Curve

**US: Core Inflation and Unemployment Rate**

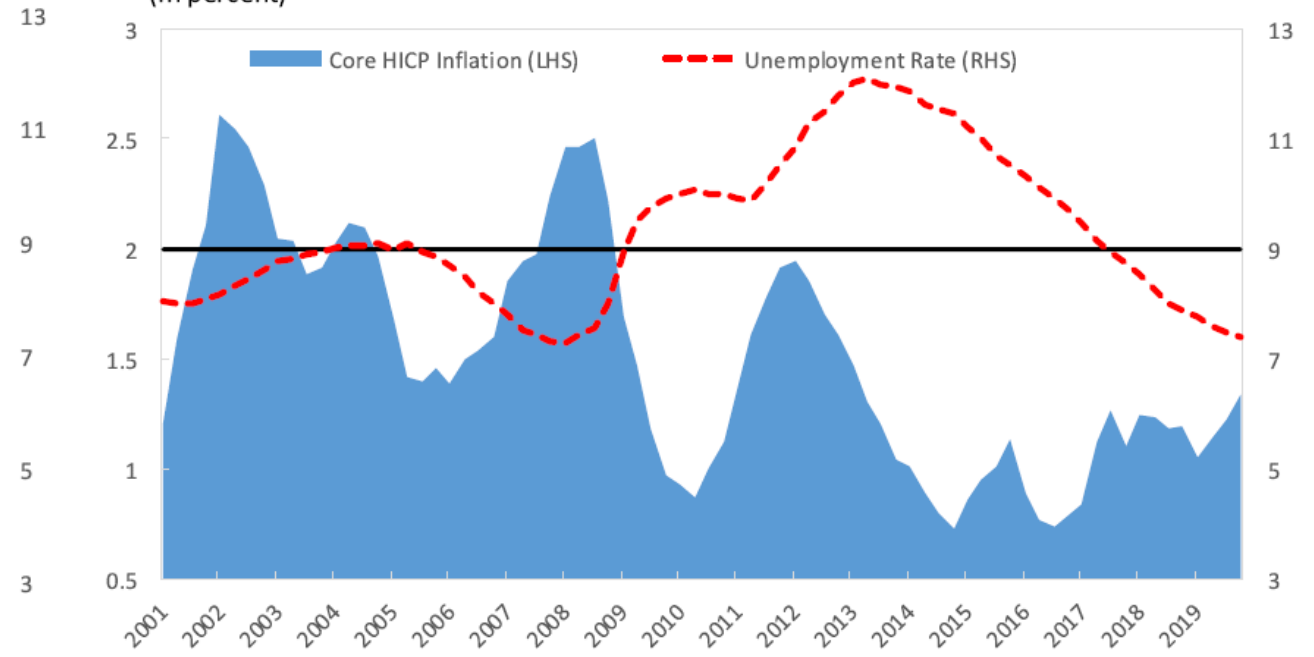
(In percent)



Source: Haver Analytics

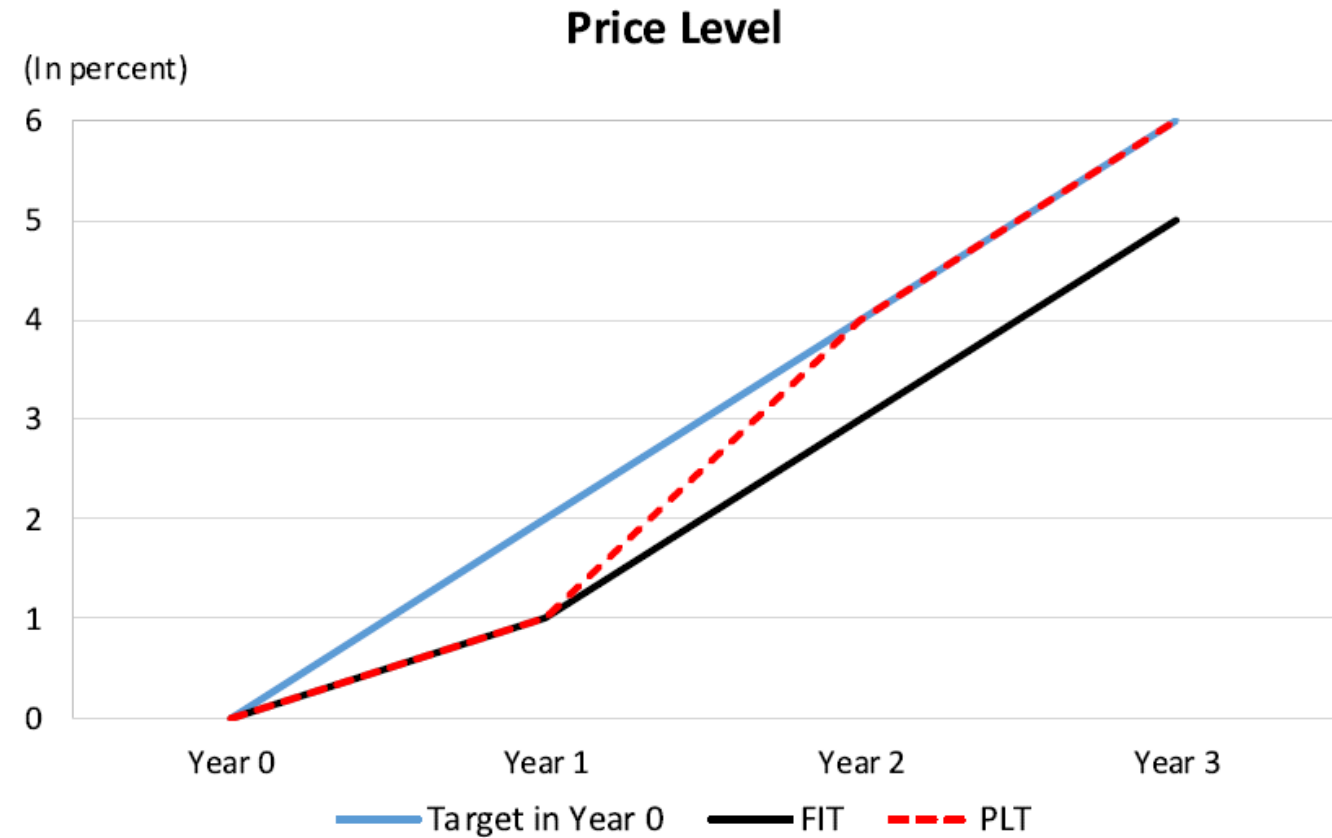
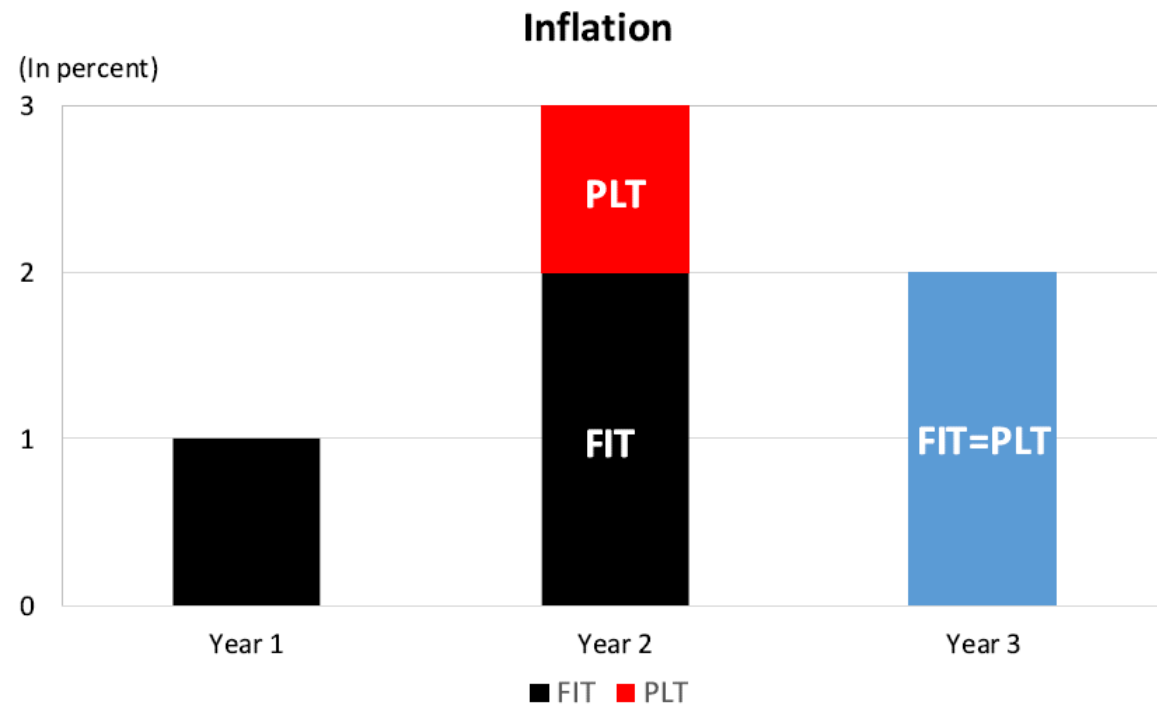
**Euro Area: Core Inflation and Unemployment Rate**

(In percent)



Source: Haver Analytics

# Making-up for missed targets



## S 6.6.5 IT challenges after GFC, Covid, inflation surge (capital flows, financial instability and EMEs)

- Review of IT regimes before inflation surge end 2021; afterwards debate became “transitory” or “permanent” and what MP reaction and when?
- IT regime continued under flex-IT and flex+make-up IT with challenges:
  - Financial credit markets cycles and how to avoid financial crises and instability
  - Mandates and legitimacy to look at secondary targets and macro issues (eg., climate change)
  - Irony present (2023-24) convergence of approaches between AEs and EMEs (eg., much closer similarity now regarding effects of ER volatility, capital flows / financial instability, nexus between MP and expansionary fiscal policies, role in surge of inflation, role of inequality in creation transmission problems for MP and frictions leading to political economy issues in many AEs)

# S 6 References

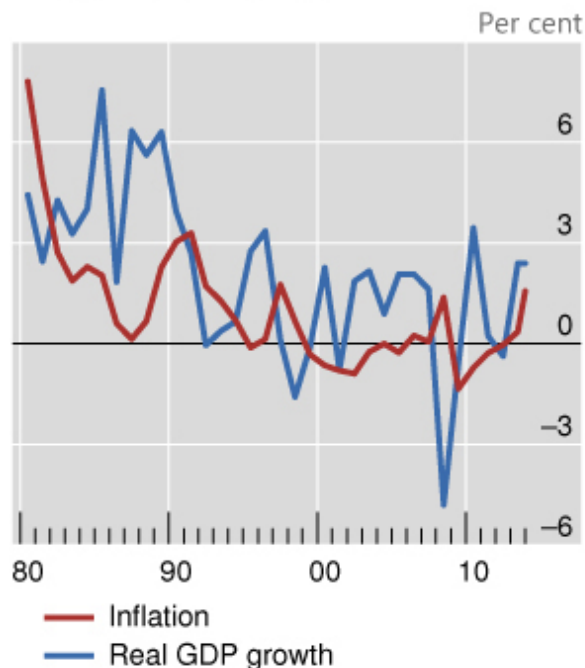
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# Japan “lost decade”

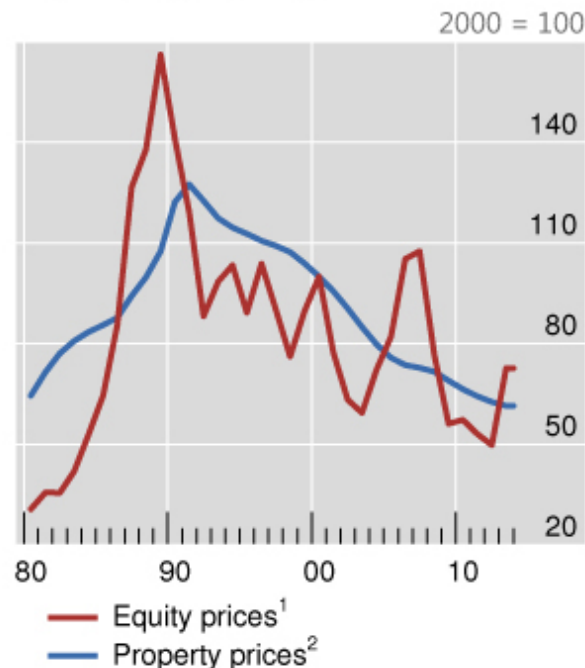
Persistent deflations in Japan: two lost decades?

Graph B

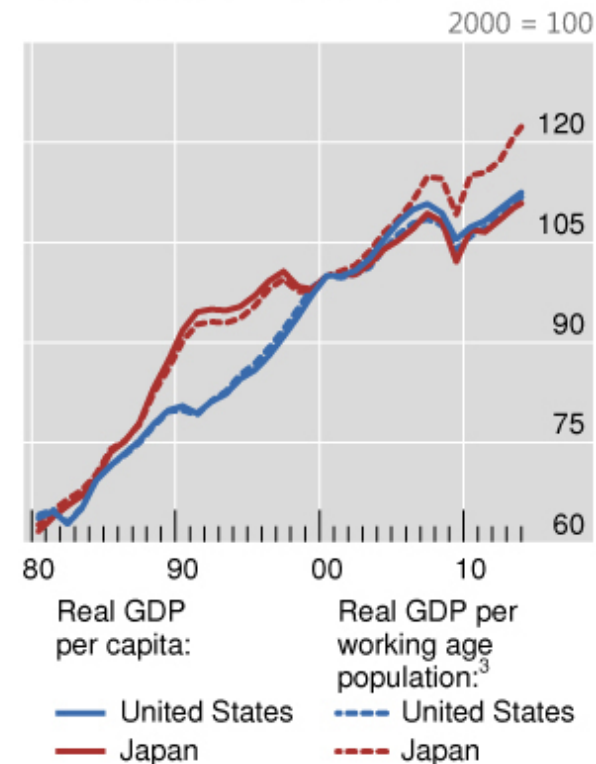
Inflation and real growth



Nominal asset prices



Relative economic performance



<sup>1</sup> Working age population refers to the 15- to 64-year-old segment.

Sources: IMF, *World Economic Outlook*; OECD; national data; BIS calculations.