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Where next for monetary policy? Lessons from the financial crisis and the pandemic

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Where next for monetary policy? lessons from the financial crisis and the pandemic

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Key points

- Review of recent monetary history.
- Monetary/fiscal policy destabilizing since the financial crisis of 2008.
- Lessons drawn for enhanced future stability.
- Central banks should aim to stabilize money supply.
- Fiscal policy should join in stabilization policy, reducing chances of interest rates hitting the zero lower bound.
- Solvency should discipline fiscal policy as a long run condition, with short run fiscal rules abandoned.
- A return to normal real interest rates to ensure a competitive market in capital and avoid capital misallocation.

Abstract

Monetary developments of recent decades began with much promise with inflation targeting by independent central banks; the financial crisis of 2007 ushered in a period of great monetary instability. There are lessons for a return to more stability. Central banks need to stabilize money supply growth. Fiscal policy should be coopted to a stabilization role to reduce interest rate instability, and particularly future risks of hitting the zero-interest rate bound. Budget discipline should be enforced by long run solvency rules, not by short run fiscal rules that in practice prevent the use of fiscal policy. Nor should the budget be burdened by monetary policy methods that transfer seigniorage to commercial banks.

Introduction: How the crisis and the pandemic destabilized today's monetary environment

The turbulent inflation of the 1970s and 1980s ushered in during the 1990s new regimes of interest rate rules that targeted inflation; these were pursued by developed country central banks that were mostly independent. This situation in turn gave rise to the 'great moderation' in the following decade when inflation was systematically moderate and growth steadily positive. With exchange rates floating among major economies outside the EU and being reset within it, it seemed as if the world had discovered the secret of monetary stability; allied to the increased adoption of market-liberal policies in trade, with financial and labor markets that underpinned growth, macro policies appeared to be in a good state.

The financial crisis of 2008 cruelly punctured this optimism. US banks, with official encouragement via the government mortgage agencies Fannie Mae and Freddie Mac, had expanded mortgage debt massively, including to poor households, and had resold them around the world in the form of mortgage-backed securities. As the world economy slowed in 2007 with tightening commodity capacity and sharply rising prices, mortgage defaults depressed these securities' market value and so bank balance sheets, precipitating the crisis and the Great Recession that followed.

Governments reacted with largescale bank bailouts, while central banks obeyed their interest rate rules by cutting rates progressively in the face of falling output and prices. Blaming commercial banks' excess risk-taking for the crisis, governments widely enacted new bank and other financial regulations. With bailouts forcing up public debt, these governments also tightened fiscal policy to hold down any further debt increases.

Central banks found themselves to be the only source of demand stimulus combatting the Great Recession, and had soon pushed official interest rates down to zero, hitting the ‘zero lower bound’, at which conventional monetary policy ceased to be effective. They then adopted unconventional monetary policy in the form of asset purchases financed by the creation of bank reserves which, with interest rates at zero, carried the same return as cash. Thus central banks were effectively ‘printing money’ to finance asset purchases from the private sector. According to credit and banking theory this should have caused an expansion of credit and broad money, but banks were slowed down in credit creation by the new regulations which mandated costly equity expansion to offset credit risk.

The result was that broad money growth was flat, the recovery from recession slow, and inflation stayed low, in spite of a massive campaign of such asset purchases. Interest rates on long bonds were driven to zero like those at the short end and this general fall in the cost of capital led to a frantic search for yield on real assets, from equities across real estate, commodities and gold-driving up their prices.

When the pandemic hit a decade later, governments were quick to issue financial support to households and firms hit by the losses of output and earnings. With debt costing nothing in money terms and negative in real terms, as inflation rose due to supply shortages, the solvency constraint on government finances did not bind. Governments issued substantial support, financed by borrowing, while central banks made further massive asset purchases to stimulate output hit by the pandemic. In effect the government support was largely paid for with the money printed by central banks. Furthermore, as part of the support program banks were exhorted to make credit readily available, and guaranteed against default for some credit categories. Most banks had by now built up their equity and other reserves against regulative requirements, so were less affected by regulative restraints. As a result, credit and broad money grew rapidly in all major developed countries—in total contrast to the period after the financial crisis.

With commodity supplies reduced by the pandemic and demands being boosted through the support programs plus the surge in credit, inflation began to rise rapidly, first in the form of sharp commodity price rises. Central banks at first dismissed these as ‘transitory’. But as inflation grew steadily, peaking at over 10% in most countries, they were forced to raise interest rates, finally moving fast away from the zero bound. At the time of writing, they stand in or close to the 4%–5% range in most major economies and have succeeded in reducing the growth rate of broad money to around zero; the resulting tightening has triggered bank runs in the US against three regional banks and in Switzerland against Credit Suisse.

This brief account of events up to and since the financial crisis reveals that in contrast to the Great Moderation of the 1990s we have since endured a Great Destabilization at the hands of monetary policy, with output, inflation and interest rates all swinging around wildly—see Figs. 1–3. However, it has taught us some important lessons for how we can create greater stability in future. I now proceed to discuss these lessons.

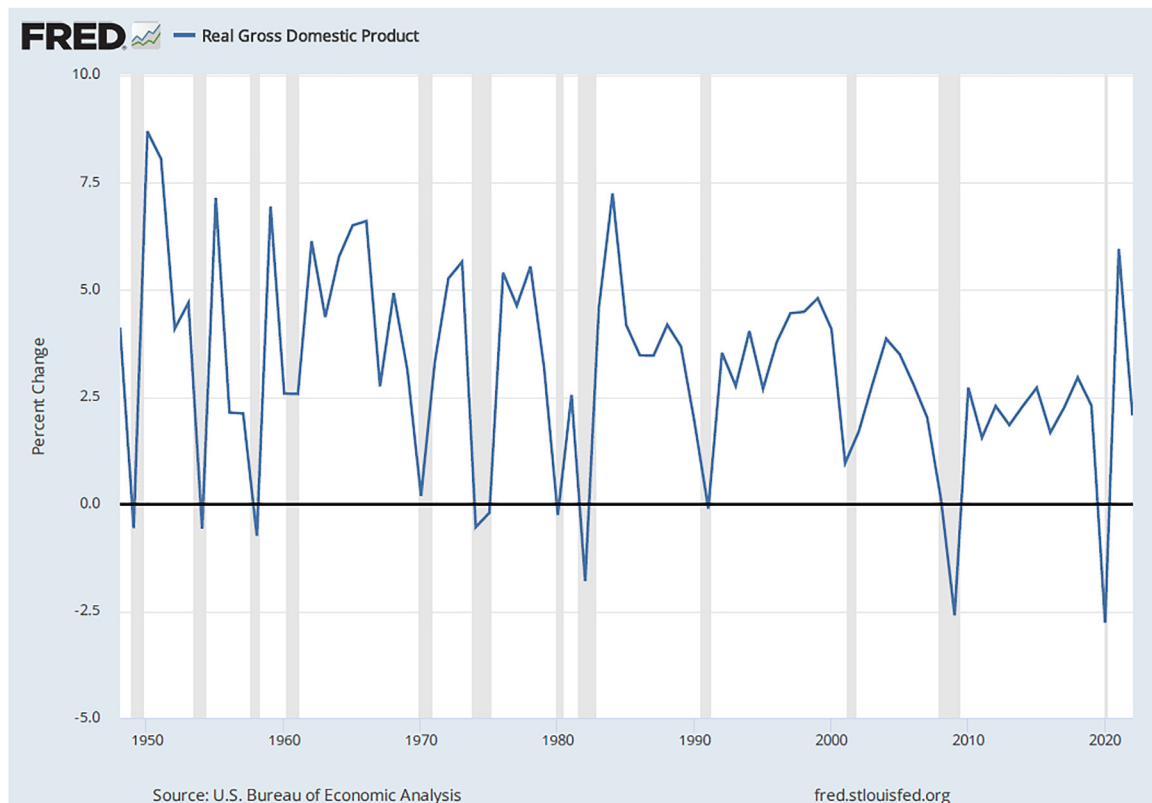


Fig. 1 US real GDP growth. Source Fed of St Louis.

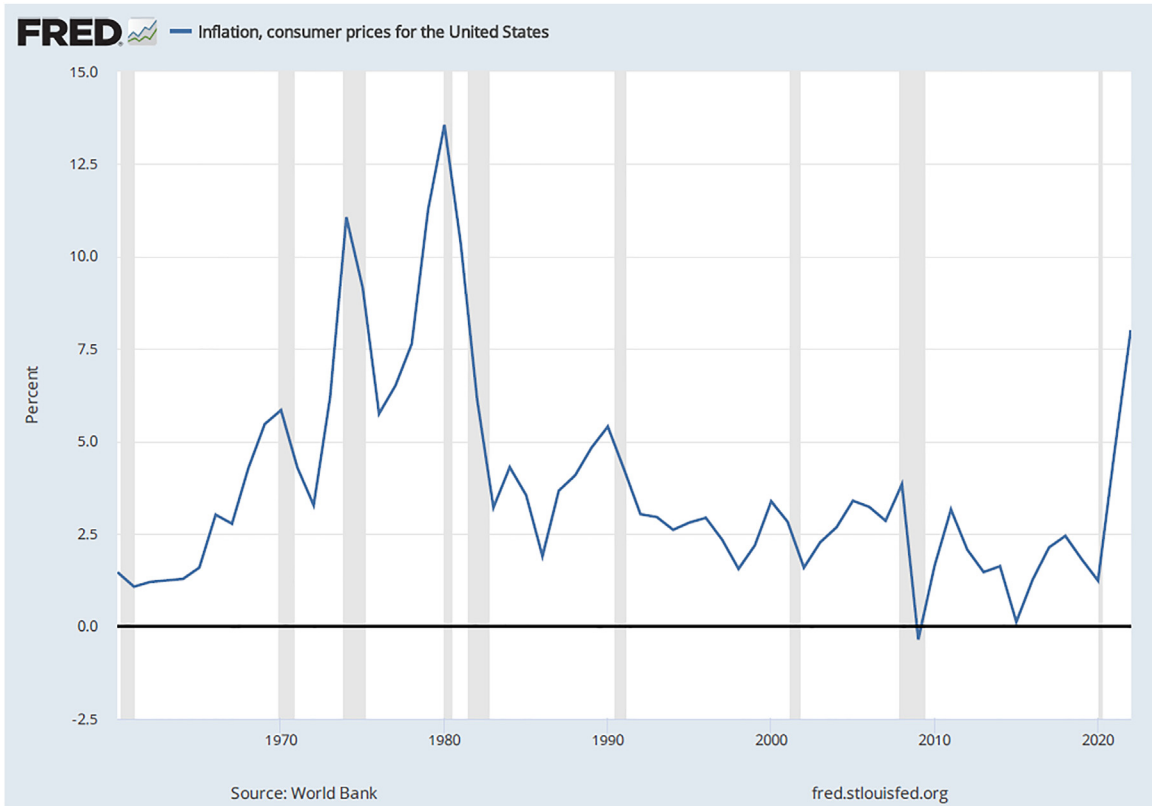


Fig. 2 US inflation. Source: Fed of St Louis.

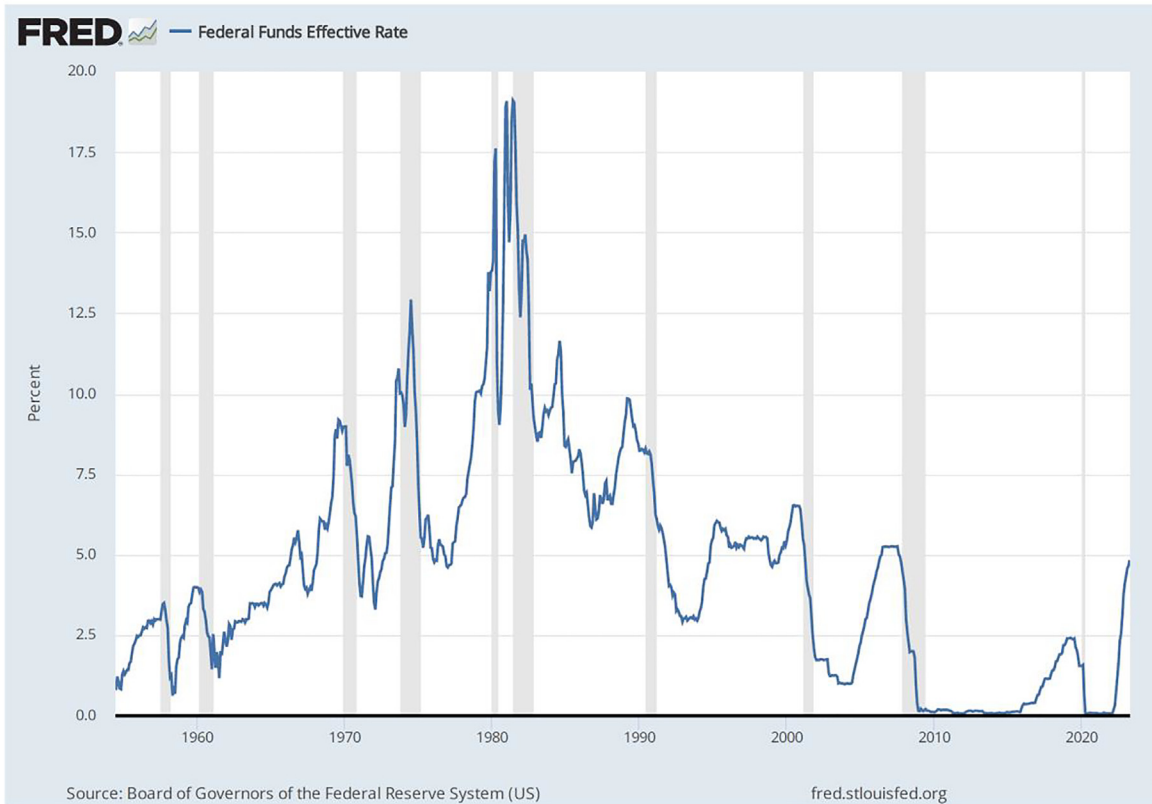


Fig. 3 US Interest rates- Fed Funds. Source Fed of St. Louis.

Lessons from the great destabilization

Avoid instability in money growth

With the 1990s adoption of interest rate rules targeting inflation, central banks began to ignore the behavior of credit and money. Previously monetary policy had been at least partially guided by money and credit indicators, together with other indicators of future output and price behavior. For example, the Bundesbank gave importance to money and credit; when the ECB began its role in charge of the euro in 1999, it promulgated two Pillars, or targets, underpinning its policies, one of which was inflation, the other money supply growth. However, from the mid-2000s the second, money supply, Pillar was increasingly ignored, with the money supply target range being regularly violated.

The move to interest rate rules had been based on the evidence of volatility in money supply growth, suggesting that interest rates should react directly to inflation and output, rather than targeting money growth and so indirectly affecting output and inflation via interactions between the LM, IS and Phillips (PC) curves. Instead, interest rates were set to target output and inflation with an Interest Rate (IR) rule directly via the IS and Phillips curves—usually with parameter values similar to those recommended by Taylor (1993), in the ‘Taylor Rule’ (TR). Thus instead of a policy model with the familiar LM, IS, PC relations, we had one with TR, IS, and PC each with their shock—Fig. 4 illustrates for a shock to demand. Calculations of the appropriate interest rate setting were largely performed inside central banks by solving for equilibrium interest rate paths given jointly by the TR rule and the IS and PC curves resulting from private sector optimizing behavior within DSGE models.

In principle these computations were correct. However, in practice these DSGE models were not necessarily good at forecasting outcomes; they were developed to find good causal explanations of macro behavior and to evaluate good rules for monetary and fiscal policy. Practical policy implementation of such rules needs to be assisted by up-to-date forecasts from available information—much as weather forecasting uses the latest data input into complex time-series models. Money supply and credit growth are important components of these data series that help to forecast inflation and output. Interest rate rules targeting nominal GDP are found to be welfare-improving compared with the Taylor Rule in both the US and the UK (Le et al., 2021, 2023b), money supply would also be stabilized.

By ignoring these key indicators, central banks made serious mistakes in setting interest rates, making asset purchases and calibrating regulative restrictions on banks. Thus, monetary policy in the 2000s was too stimulatory, largely creating the boom that led to the crisis. Post-crisis, the new regulations were responsible for stalling the recovery monetary policy was trying to engineer. During Covid, the regulative loosening together with the huge scale of money printing caused a greatly excessive stimulus leading to the Great Inflation Revival. As for the Great Interest Reversal now taking place in response, the sharp overkill is now threatening further

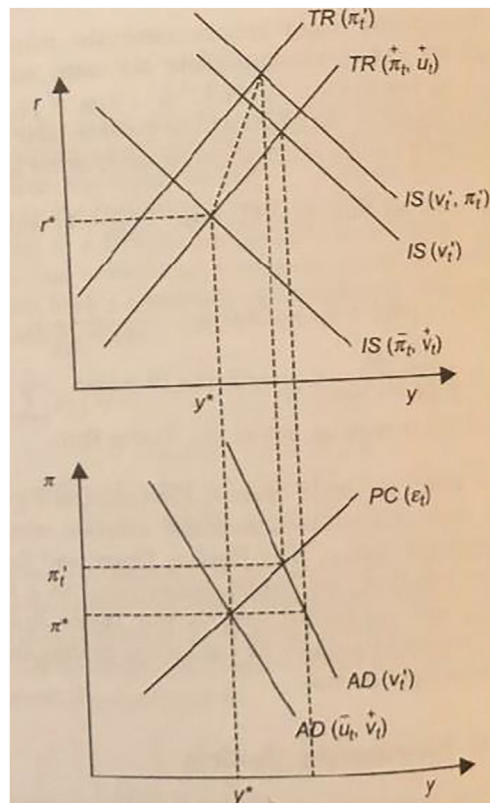


Fig. 4 Graphical representation of IS-TR-PC model with demand shock.

bank crisis. All these excesses would have been avoided had policy taken account of money supply behavior, as is clearly evidenced by this behavior over these periods. Thus, the charts for broad money that follow for the US, the UK and the ECB- see [Figs. 5 and 6](#), all reveal: strong growth in the 2000s, weak growth in the 2010s, massive growth during Covid and a collapse since.

The role of fiscal policy

An active fiscal policy stabilizing output can reduce the stress on monetary policy, stabilizing interest rates ([Spilimbergo et al., 2008](#); [Blanchard et al., 2012](#); [Alesina and Giavazzi, 2013](#), for contrary views). After the financial crisis and the resulting large bailouts of the banking system, which added greatly to public debt, governments stressed the need to run fiscal surpluses to pay off the debt. As a result, fiscal policy became contractionary just as the developed economies required a sharp recovery from the Great Recession. This fiscal behavior reflected pre-crisis thinking in which monetary policy was considered the sole instrument suited to macro-stabilization; the role of the budget was to stabilize debt and fiscal policy was thought to be inappropriate to stabilize output because too slow and unwieldy, and likely to be neutralized ('crowded out') by monetary policy.

It was this thinking that overloaded monetary policy after the crisis, causing interest rates to fall rapidly to the Zero Lower Bound (ZLB). We have now learnt that counter-cyclical fiscal policy can complement monetary policy by sharing the burden. In the recession it prevents the collapse into the ZLB and in the boom it avoids punitive rises in interest rates. It therefore achieves more output, inflation and interest rate stability.

We have strong evidence of this from models of the US, the UK and the eurozone, shown in the following tables. Take the US first. [Le et al. \(2021\)](#) estimated a DSGE model of the US over the bulk of the postwar period in which the duration of price-setting depended on the inflation environment: the more volatile inflation, the shorter the duration. The ZLB eliminates the interest rate rule's power to stabilize inflation, which triggers higher inflation variance, shortening price duration and so further destabilizing inflation in a feedback loop. They simulated a stronger interest rate rule (NOMGDPT) targeting the level of Nominal GDP, accompanied by a fiscal policy rule suppressing the ZLB- in effect a counter-cyclical response strong enough to prevent an output fall triggering the ZLB. As their [Table 6](#) reproduced below shows, this monetary-fiscal combination (line 2) greatly reduces inflation variance by cutting into this feedback loop, and also dampens output variance ([Table 1](#) shows the result using the model-generated trend under the flexprice model, FP; but the same occurs with the data-driven balanced growth path, the path 'mistaken' by the model.)

Work on a similar model for the UK found that a similar model fitted UK data behavior before and after the financial crisis, from 1986 to 2016 ([Le et al., 2023a](#)). Like the US model, it implies that fiscal policy can contribute to stability by limiting zero bound episodes. Below we show how different fiscal policies contribute to the overall stability of the economy across a large sample of bootstrapped shocks (taken from the full sample period). It can be seen that the fiscal policy backstop, added to NOMGDPT monetary policies, helps to raise stability; we also see that a straightforward fiscal feedback rule produces a similar result- [Table 2](#).

For the eurozone, in a model that divided the zone into two separate regions, North and South, [Minford et al. \(2022\)](#) found that it matched eurozone data well over the first two decades of the euro's existence; they modeled the zero bound indirectly by assuming the central bank rule targets the commercial credit rate with its repertoire of instruments, including QE. As in the other models just reviewed fiscal policy can increase stability substantially. We show the key results in the next few Tables; the results of policy interest are for the Base case, Regime 5 where each region is free to use its fiscal policy to stabilize its own economy, and Regime 7 which additionally creates in place of the euro two regional euro currencies with independent regional central banks pursuing their own interest rate rules. [Table 3](#) reveals the sharp falls in key variances due to introducing Regime 5 Regime 7 increases stability more but is not on the political agenda. [Table 6](#) shows the equivalent implied rise (vs. the baseline) in permanent household consumption due to this rise in stability. Ignoring Regime 7, we can see that allowing independent fiscal policy greatly raises stability. The

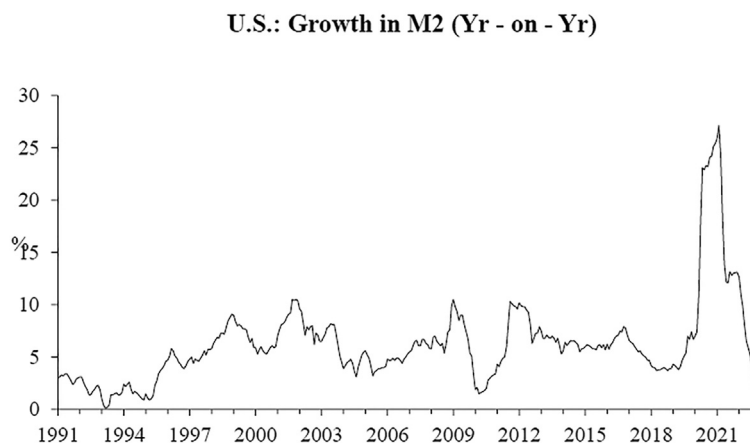


Fig. 5 US money supply growth.

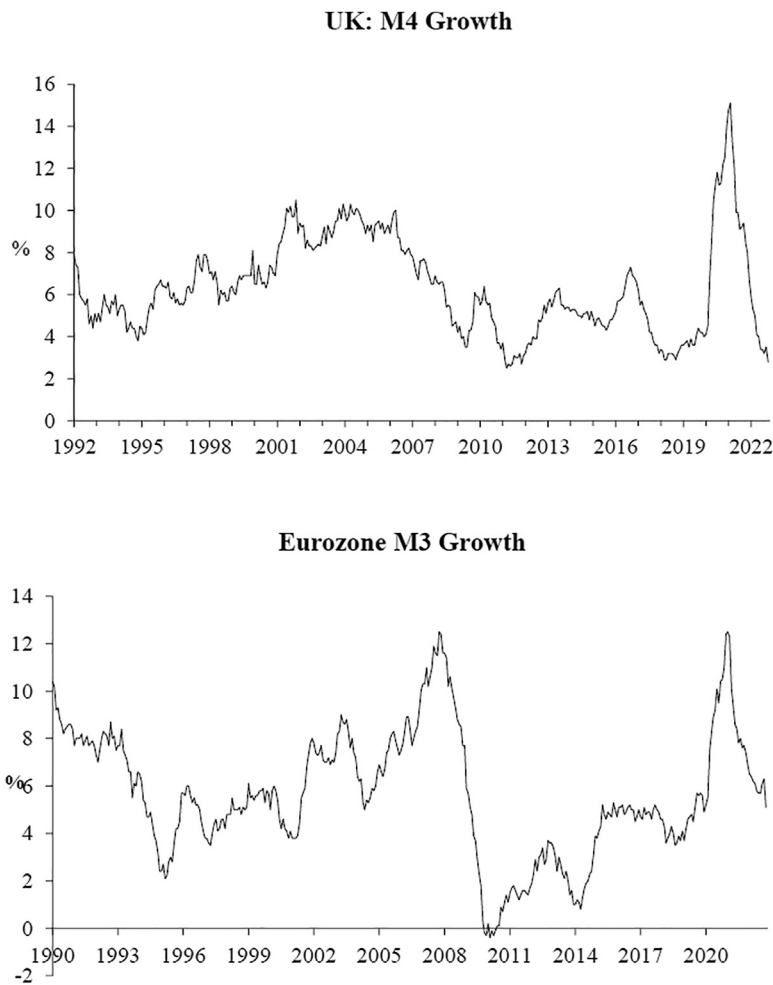


Fig. 6 UK and eurozone money supply growth.

Table 1 Findings of [Le et al. \(2021\)](#) for the US (their Table 6).

<i>Table 6. Welfare comparison for mistaken equilibrium output path.</i>			
	$var(\pi)$	$var(y)^a$	<i>Welfare</i> ^b
Taylor rule	0.1127	20.8553	0.16453
NOMGDPT (noZLB)	0.0176	20.1508	0.06791

^aDeviation from Optimum output under FP model.

^bWeighted welfare = $0.9975 \cdot var(\pi) + 0.0025 \cdot var(y)$.

Table 2 Findings of [Le et al. \(2023b\)](#) for the UK (their Table 8).

<i>Table 8: Variance of simulations</i>			
<i>Variance</i>	<i>Baseline NGDP targeting</i>	<i>ZLB-suppressing fiscal shock</i>	<i>Strong fiscal feedback</i>
	Non-crisis + crisis model	Non-crisis model + suppressing fiscal shock	Non-crisis + crisis model + strong fiscal feedback in both models
Var(output)	0.0108	0.0067	0.0034
Var(inflation)	0.0371	0.0282	0.0251
Welfare loss	0.0425	0.0350	0.0284
Var(interest rate)	0.0186	0.0306	0.0227
Utility	-52.38	-51.03	-51.97

Table 3 Findings of Minford et al. (2022) for the eurozone (their Tables 4 and 6).

<i>Table 4. Average variance of the output gap, inflation and the real interest rate.</i>									
	<i>Var(y-yf)</i>			<i>Var(x)</i>			<i>Var(R-x)</i>		
	<i>North</i>	<i>South</i>	<i>EU</i>	<i>North</i>	<i>South</i>	<i>EU</i>	<i>North</i>	<i>South</i>	<i>EU</i>
Base case	1.95	2.13	1.29	0.32	0.35	0.16	1.05	0.78	0.68
Regime 1	1.47	2.21	1.12	0.33	0.36	0.17	1.06	0.76	0.67
Regime 2	4.45	2.27	2.34	0.48	0.36	0.22	1.49	0.86	0.84
Regime 3	0.61	2.19	0.77	0.30	0.35	0.13	0.94	0.70	0.54
Regime 4	1.89	0.71	0.56	0.32	0.31	0.14	0.99	0.72	0.58
Regime 5	0.63	0.69	0.41	0.31	0.31	0.14	0.92	0.60	0.52
Regime 6	2.02	2.26	1.31	0.15	0.16	0.09	0.61	0.71	0.53
Regime 7	0.65	0.67	0.42	0.15	0.15	0.09	0.48	0.57	0.43

<i>Table 6. Average change in equivalent consumption.</i>			
	<i>North</i>	<i>South</i>	<i>EU</i>
Base case	—	—	—
Regime 1	7.83%	9.33%	8.63%
Regime 2	−65.5%	−3.16%	−36.5%
Regime 3	26.3%	1.13%	14.2%
Regime 4	2.24%	40.6%	19.7%
Regime 5	21.4%	37.4%	28.7%
Regime 6	3.13%	6.16%	4.23%
Regime 7	32.2%	53.3%	39.2%

Eurozone Stability and Growth Pact (SGP) currently prevents this policy, essentially to protect the North from the threat of a Southern bailout. However, the paper shows that the average debt/GDP ratio in the South rises little due to the policy, suggesting that this threat could be contained simply by a solvency-monitoring process replacing the SGP.

Similar results are found for Japan. Growth in Japan has been notoriously weak, even though monetary policy has been stimulative for several decades. Fiscal policy has been intermittently stimulative between contractionary episodes where consumption taxes were raised; the simulation results show that a fiscal rule consistently exerting countercyclical pressure would have stabilized output more around a rising trend. **Table 4** shows how, in a standard ('No sunspot') model a strong countercyclical fiscal policy greatly stabilizes the economy.

These results for fiscal policy all assume that public spending is used as the fiscal instrument; lumpsum transfers would be ineffective due to Ricardian equivalence, while varying distortionary taxes over time creates welfare losses from increased distortions.

However, the efficacy of fiscal policy does not appear to vary with the level of debt; our various countries had widely differing debt/GDP ratios, all the way to about 250% in Japan; but the effects on stability are similarly beneficial across them all.

Solvency and short-run fiscal rules

A further lesson from these episodes is that simple short run fiscal rules should not be used to regulate fiscal policy in order to safeguard solvency for large developed countries. These rules prevent the deployment of fiscal policy both as a counter-cyclical tool and as a tax-smoothing instrument, holding tax rates down to optimal long run settings.

The condition for solvency is that at some point in the future the government runs primary surpluses indefinitely; this in turn implies that the present value of future debt tends to zero in infinite time-i.e. debt grows more slowly than the real rate of interest. Plainly the markets must have confidence that this condition will be fulfilled which requires good communications and evidence of intent. But this does not require the sacrificing of fiscal policy as just set out. Rather, it implies continuous provision of information on government policies and their support in public opinion.

Table 4 Findings of Le et al. (2023a) for Japan (their Table 5).

<i>Table 5. Effects on volatility of strong fiscal policy in No-sunspot model.</i>				
<i>No sunspot model — HP = y*</i>	<i>var(Y)</i>	<i>var(π)</i>	<i>var(R)</i>	<i>Welfare cost</i>
No sunspot base line	2.6270	0.8532	0.1262	3.6064
Fiscal policy	0.1837	0.8160	0.1074	1.1071

Regulation, supply-side issues and seigniorage

Other issues that have emerged concern regulation, the conduct of interest rate targeting and the supply-side effects of monetary policy. From the weak recovery from the financial crisis, we discovered that bank regulation could be a crude barrier to necessary bank lending. Instead, banks should be protected from bank runs by a system of liquidity provision, accessible to banks satisfying balance sheet adequacy-i.e., having sufficient capital buffers against bad debts. Also, any required new capital buffers should be imposed with due attention to the cyclical situation, and not rushed in as occurred after the financial crisis, where they exacerbated the downturn and derailed the recovery.

The experience with the ZLB has revealed that it creates dangerous distortions on the real side of the economy, with capital mispriced and misallocated. Productivity growth has stalled in most developed countries, as zombie firms have been kept alive and markets increasingly dominated by large firms facing falling competition (Liu et al., 2022). With capital markets now returning toward normality, it is to be hoped that these distortions will fade.

On interest rate targeting, central banks need to intervene in short term bond markets sufficiently to influence the rate; but this does not mean intervening in all short-term markets, merely in the major one. During the pandemic central banks pushed short rates to zero and then by paying the same interest rate on bank reserves, forced all arbitrage activities by banks in available markets to this same rate. However, this policy in normal times implies transferring the seigniorage on money creation to commercial banks, at substantial cost to the taxpayer. There are other ways to prevent banks from undermining central banks' rate-setting operations in short term markets; notably, imposing reserve ratios and paying interest only on excess reserves.

Implications for current policies

These lessons can be applied as the world economy moves out of its current high-inflation near-recession state. Current policies need to support this transition. Monetary policy has tightened sharply in response to the high inflation but now needs to avoid over-tightening, having succeeded in bringing down money supply growth to non-inflationary rates. The lags with which monetary policy operates are long and unpredictable; we need to keep the risks of a deep recession and even another banking crisis well in mind. The recent collapse of several US regional banks and of Credit Suisse has just reminded us painfully of those risks.

Conclusions

The monetary developments of recent decades began with much promise after the turbulent inflation of the 1970s was ended by the tough monetary contractions of the 1980s and followed by widespread moves to inflation targeting by independent central banks. There ensued the period of the Great Moderation when inflation stayed low and growth was strong and steady, while trade liberalization promoted globalization and the rapid rise of many developing countries, especially China and its Asian manufacturing supply chain satellites. However excessive monetary loosening in the 2000s ended in the commodity price explosion and the financial crisis later in that decade. Since then, monetary policies that aimed to stimulate recovery have ushered in the zero lower bound and a massive experiment in sustained money creation. When the Covid pandemic struck there was a doubling down in money creation to accompany large fiscal transfers. Inflation returned to high rates last seen in the 1970s, with commodity prices spiking as Covid-disrupted supplies faced surging demand. After a slow start central banks responded with rapidly-rising interest rates, bringing the zero bound era to a shuddering end.

I have tried to distil from this unstable history some lessons for how we can shape future monetary developments so that we enjoy more stable macroeconomic outcomes in the coming years. In sum, I have argued that central banks need to stabilize money supply growth and that fiscal policy should be coopted to a stabilization role to reduce interest rate instability, and particularly future risks of hitting the zero bound. As part of this fiscal co-option budget discipline should be enforced by long run solvency rules, not by short run fiscal rules that in practice prevent the use of fiscal policy. Nor should the budget be burdened by monetary policy methods that transfer seigniorage to commercial banks.

In all this, I have not suggested any retreat from central bank independence, in spite of the manifest recent failures we have seen in monetary policy. The benefits of independence remain in the form of an institutional commitment to low inflation. Yet plainly, if central banks continue to fail in their stabilizing tasks, these benefits will be undermined. It is therefore important to prevent such failure by carrying out the reforms set out above, so that we can keep the gains.

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