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Institutional Innovation and Central Bank Independence 2.0

Kenneth S. Rogoff *

Introduction

It is great honor to give the 2022 Mayekawa Lecture at the Bank of Japan. My topic today is how central bank independence has been challenged in the zero-bound era, and how it is likely to be challenged further in the coming if contemporary trends in deglobalization are sustained. Central bank independence, of course, is the bedrock of modern inflation targeting, which itself is a way of asserting and reinforcing independence.¹ Too much analysis of central bank policy takes independence as given, focusing solely on technical issues, and ignoring underlying political economy issues that have become far more acute in an era where the zero bound has radically curtailed conventional monetary policy, and populism has created enormous pressures for mission creep.

If, as a great many academics and commentators have opined, fiscal policy should be responsible for much more of the burden of routine macroeconomic stabilization (not just in severe crises such as the pandemic), that too will create new political economy pressures that do not exist to the same degree in a regime where fiscal policy governs the long-term direction of the economy, and monetary policy handles short-term stabilization. The modern idea that fiscal policy can be made as technocratic as central bank interest rate policy (for example, using precision-calibrated countercyclical transfer payments) is, in my view, highly dubious in today's divisive political environment.

I will suggest that if the global real interest rates – and therefore presumably the theoretical abstract of the neutral real policy interest rate – remain at incredibly low levels as the post-pandemic-era inflation abates, important innovation is needed to restore the efficacy of normal interest rate policy. Without a meaningfully independent instrument, central bank independence itself becomes more difficult to maintain, as the experience of the past decade has shown.

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¹ The idea of having an independent central bank to deal with political economy pressures was first advanced in Kenneth Rogoff, 1985, "The Optimal Degree of Commitment to an Intermediate Target," *Quarterly Journal of Economics*, 100, November, pp. 1169-89. The paper, which in general analyzes the tradeoff between commitment and flexibility in choosing an intermediate monetary target, considers optimal inflation targeting among other approaches.

On the other hand, the trend towards deglobalization, which has the potential to be a massive ongoing negative supply shock, puts tremendous pressure on central banks to allow higher inflation, certainly in the short run but also potentially in the long-run if deglobalization fundamentally impacts the political economy pressures on the central bank, for example by increasing the monopoly power of firms and unions, or by making prices less flexible.

Interplaying with all these issues, and almost certainly having major implications for central bank independence is the rise of digital currencies. For emerging markets and possibly small, advanced economies, digital currencies – especially advanced economy central bank digital currencies – could exacerbate problems in maintaining monetary autonomy. Crypto currencies are already having an impact in emerging markets. Advanced-economy central banks have fundamental decisions to make with respect to regulation that could profoundly alter their status within the society and within the government.

Political Pressures on the Central Bank: The Recent Example of the United States

Before I turn to the more academic themes, and to underscore the point that political economy influences on monetary policy may be on the rise, it might be helpful to consider the recent experience of the United States Federal Reserve, which may or may not smoothly dig its way out the difficult current adverse inflation dynamic.

Many commentators view the sharp rise in inflation since early 2021 as a profound failure of monetary policy. (The April 23rd cover of the *Economist* magazine trumpets “The Fed that Failed.”) In their view, an inflation-targeting central bank should have realized, far sooner than the Fed did, that by spring 2021, the post-pandemic recovery was well underway. Overstimulated by a 1.9 trillion-dollar stimulus package in March 2021, coming on top of several earlier rounds of trillion-dollar stimulus packages, it was easy to see that sustained inflation inevitable. Supposedly distracted by pressures to address the environment, inequality and social justice, the Fed responded much too slowly and much too meekly. By insisting for too long that inflation was mainly driven by temporary supply shortages and likely to recede, the Fed painted itself into a corner where it is now forced to respond more aggressively, even to supply shocks, than might normally be called for.

While having important elements of truth, this simplistic view understates how much political economy pressures on the US central bank have ramped up in recent years. It also denies the massive uncertainty in the economics profession about the long-term trajectory of “neutral” interest rates as well as the determinants of inflation. And it does not assign nearly enough responsibility to policy economists and academics who argued for a much larger role for countercyclical fiscal policy, particularly at the zero bound, without giving clear guidelines of any sort to how it might be calibrated. Relatedly, the argument that debt to GDP ratios can be raised substantially in most advanced economies, without any need to raise future taxes (including the inflation tax), has also played a significant role in encouraging maximalist fiscal policy without concern for potential effects on resilience.

Consider an alternative view. From the perspective of 2019, inflation seemed to have been conquered worldwide, with downward pressures from globalization making deflation a far bigger

issue for advanced economy central banks than inflation. In 1992, over forty countries had inflation over 40%; but by 2015 that number had fallen to less than a handful. Central banks were convinced they knew how to fight high inflation but were far less sure how to fight the relatively new problem of excessively low inflation, particularly given the apparent collapse of equilibrium real interest rates. As policy rates sat longer and longer at the effective lower bound, markets implicitly came to believe that central bank target rates would be significantly negative, if that were possible. Thus, the likelihood of interest rates being raised into positive territory was extremely low for the foreseeable future. As the zero-bound era persisted, long-term interest rates collapsed across the advanced economies.

With conventional monetary policy stymied, and the effectiveness of alternative monetary instruments fading sharply over time, central banks came under two types of pressures. The first was to spend much more their time addressing other issues where they lacked competence and effective targeted instruments. The second pressure was far less subtle: if risk of high inflation is dead or at least deeply dormant, and short-term real interest rates zero, why not have the central bank cede a much larger share of stabilization policy to the fiscal authorities? Central banks can just play a supporting role by buying up government debt (which in the United States still had a significant positive interest rate) and substitute short-term bank reserves, which paid near zero. Modern Monetary Theory is, of course, an extreme caricature of this viewpoint,² but the overwhelming thrust of the post financial crisis literature has also pointed in this direction.

It is this context that during 2019, the Federal Reserve held a review of its monetary framework; several other central banks have engaged in similar exercises. Importantly, open-ended negative nominal interest rate policy (which would require a novel approach to dealing with paper currency), was apparently viewed as too political and basically taken off the table. (Here the political pressure comes mainly from the right.) The academic reviews the Fed commissioned, on balance, generally painted a somewhat rosy picture of the effectiveness of alternative monetary instruments, especially given the disappointing results around the world in fighting deflation in an exceptionally low real interest rate environment. The ultimate result of the review, is as well known, was a new asymmetric framework that squarely treated today's core monetary policy challenge as fighting deflation, not inflation (because it presumed the latter problem was solved). I need not go into the details here.³

Let us now fast forward through the pandemic – where the Fed's creative and aggressive interventions into private markets (“fiscal quantitative easing”) are rightly credited with holding down long-term scarring, and arrive at early 2021, when the seeds of inflation were starting to sprout. With 20-20 hindsight, it is now clear that an omniscient (and fully independent) Fed should already have started at least gently hiking interest rates by mid-year. But what was the reality of the intellectual and political pressures it faced?

² The MMT view is laid out in Stephanie Kelton, *The Deficit Myth: Modern Monetary Theory and the Birth of the People's Economy*, Washington: Public Affairs, 2020.

³ “2020 Statement on Longer-Run Goals and Monetary Strategy,” Federal Open Market Committee, August 27, 2020.

The political side is clear. In January 2021, progressives (the left) had swept into Washington, believing they had a mandate for major change. The progressive's main idea for financing new programs and expenditures was to radically increase taxes on upper-income Americans, which if implemented fully might well have proved both sustainable and non-inflationary (albeit with likely negative effects on trend growth, which was considered a fully acceptable trade-off). However, it was understood that sharply raising taxes on high-income Americans would require overcoming strong entrenched interests, an insurmountable challenge since the "mandate" for change was backed only by razor-thin majorities. However, deficit finance was viewed as a reasonable second-best alternative if the obstacles to higher taxes proved too great. Given apparent success of successive debt-financed pandemic stimulus programs, continuing ultra-low interest rates, and the lax attitude in both parties towards deficits, the fallback position became the leading idea.⁴

When the March 2021 stimulus bill came along, what should the Federal Reserve have done? Mostly importantly, even if a few prominent economists (most notably an exceptionally prescient Lawrence Summers) were warning it might cause inflation, the general view was that the risks were small. After all, United States had not seen elevated inflation in decades. In the academic literature, there was growing debate over the empirical relevance of the Phillips curve, and little consensus over the neutral real policy interest rate. Both factors, made it difficult to assess just how much monetary stimulus there was in the system. Uncertainty over the effects of years of quantitative easing compounded this uncertainty.

Given still exceptionally low inflation and legitimate concerns about inequality, didn't progressives deserve a chance to implement the policies they had been elected to champion without having the Fed interfere, especially when so many believed that inflation would either not be a problem or would develop so slowly it would prove easily manageable? It would not have been so easy for the Fed to stand in the way. Recall that the Japanese experience was held out as showing there was enormous running room for debt and deficits without inflation.⁵ (Although holding Japan as example that a legacy of extremely high debt is not a problem for future growth is another issue; overwhelming academic consensus is now that debt is a drag. Being able to borrow is good for growth, inheriting extremely high debt is most definitely not.⁶)

⁴ Even aside from Modern Monetary Theory, the academic literature increasingly, if not quite unanimously, argued for greater use of debt finance leading and not to be concerned with rising debt levels, given ultra-low real interest rates. Indeed, in his widely praised 2019 American Economic Association presidential address, Olivier Blanchard argued that given that growth rates appeared likely to exceed interest rates for an exceptionally long time, debt could be much higher without having to raise taxes or inflate it away. These arguments had a major influence on politicians worldwide.

⁵ The claim that excess demand automatically leads to inflation must be qualified by the fact the United States is an open economy. The theoretical case for how excessive fiscal stimulus leads to inflation is not as airtight as sometimes presented. In normal times, price pressures due to excessive fiscal stimulus might at least in part be relieved through a larger current account deficit. In the event, of course, global supply pressures limited that channel.

⁶ See the literature reviews in Abbas, S. Ali, Alex Pienkowski, and Kenneth Rogoff, 2019, *Sovereign Debt: A Guide for Economists and Practitioners*, Oxford University Press.

Had the Fed that tightened before inflation had convincingly taken hold, it would have been both politically and intellectually vulnerable. I am not simply referring to fact that the *New York Times* was still publishing puff pieces about Modern Monetary Theory as late as February 2022, but that the mantra of the academic papers selected for the Fed's 2019 review emphasized, repeatedly, not to move too quickly to stamp out inflation for fear of being faced with more difficult to tackle deflation, and worst of all, recession. Indeed, had the Fed raised interest rates even slightly, it would own any subsequent recession, whatever the main cause.

As the year 2021 progressed, another consideration began to loom large on the horizon. Newly-elected President Biden had to fill several seats on the Federal Reserve, as well as appoint the chair within the year. Of course, even this would not be enough to dismantle the strong culture of independence at the Fed, but it was still a powerful influence. Had the Fed followed the new consensus advice and raised interest rates much sooner, it seems unlikely the incumbent chair would have been reappointed. Surely, any replacement would have been a policymaker with known more "dovish" views. Markets would have quickly realized this, muting the effects of the tightening cycle on longer term interest rates. President Biden chose not to resolve this uncertainty until late November 2021.

The Political Economy of Macroeconomic Stabilization Policy in an Environment of More Activist Fiscal Policy

This brings us to another critical issue. Central bankers and monetary policy analysts are often asked if there is a risk that current elevated inflation could morph into a more sustained and difficult to tame 1970s style inflation. The common answer, intended to be reassuring, is that this is highly unlikely. Inflation expectations are far better anchored. Central bankers understand how to deal with supply shocks much better than they did in the 1970s. Central banks are now independent. This all rings true. However, it omits to consider the reassertion of fiscal policy as co-equal partner in stabilization policy. While it is fair to say that more is known about fiscal policy than fifty years ago, theory and practice are far less developed than for monetary policy. The idea of laying out a technocratic fiscal rule with anywhere near the degree of consensus as around monetary policy is, at least in the United States, nothing short of ludicrous. The politicization of fiscal policy is baked into the democratic process.

In two papers written four decades ago, Alesina and Tabellini (1990) and Persson and Svensson (1989)⁷ argued that democracies with competing political parties inevitably have a strong debt bias. Overspending (under-taxing) is not only a way of taking advantage of what might be a transitory period in power, but also a way of constraining the opposition party when it comes into power. Translated into United States politics, Republicans do not mind running deficits if they are to fund new tax cuts or spend more on the military. Democrats are happy to run deficits if the money is spent on social programs and middle-class entitlement programs. Invariably, the

⁷ Alberto Alesina and Guido Tabellini, 1990, "A Positive Theory of Fiscal Deficits and Government Debt," *Review of Economic Studies*, 57 (3), July, pp. 403-414. Torsten Persson and Lars Svensson, 1989, "Why a Stubborn Conservative would Run a Deficit: Policy with Time-Inconsistent Preferences," *The Quarterly Journal of Economics*, 104(2), May, pp. 325-345.

opposition party almost wants to scale back the size of deficits to have greater flexibility for when it is next in power.

For broadly similar reasons, plans to create “automatic” broad-based transfer payments neglect the fact that rent-seeking politicians have every incentive to undo their effects.⁸ The Congressional Budget Office in the United States has managed, admirably, to retain its reputation as an honest broker for budget cost and debt projections, but it is still sharply constrained in how it can make its assessments (for example needing to take legislation governing future spending and taxes as credible, even when it is not). And it cannot advise on policy. As long as there are sharp divisions between two closely competing parties, long-term fiscal credibility is necessarily sharply circumscribed.

The 2021-22 US experience underscores just how much the recent academic literature has failed to incorporate political economy. For example, the standard prescription for stimulating the economy at the zero bound is to use deficit-financed fiscal policy up to the point there is “lift-off” of interest rates. The idea is common to many papers and widely advocated in the policy literature. An early full-blown New Keynesian reference is Christiano, Eichenbaum and Rebelo (2011).⁹ Importantly, Christiano et al. emphasize that if fiscal authorities cannot credibly commit to taking their foot off the gas once lift-off is achieved, then it will be much less effective. That basic point is also clear from the Krugman’s seminal 1998 two-period model¹⁰, where one can show that a shock to government spending that is expected to be permanent does little to push interest rates away from the zero bound.¹¹

The excessive stimulus during 2021 shows the pitfalls of the “maximal deficit spending until liftoff from the zero-bound approach.” First, in a theoretical model, fiscal policy can be dripped out, but in practice, major spending bills come in big chunks since they involve so much horse-trading to reach consensus; that is there are significant transactions delays, and large deadweight costs. Second, the timing of expenditures themselves are difficult to calibrate. Fiscal policy is not a single variable, but the sum of vast spending and tax policies, each with their own redistributive and idiosyncratic effects. No two fiscal stimulus programs are the same, and no two can be expected to have the same impact and timing. Third, fiscal subsidies often create their own constituencies that make them difficult to reverse, which if built into expectations, creates problems with their initial efficacy as there is less effect on the interest rate as Christiano et al. demonstrate. But perhaps most importantly, even if the central bank is charged with raising interest rates if fiscal stimulus is excessive, it is not necessarily easy to forecast when inflation will rise, particularly if inflation expectations are firmly anchored. In sum, the equivalence of

⁸ I am somewhat understating the progress internationally, where fiscal councils have evolved to try to depoliticize certain elements of the fiscal process.

⁹ Lawrence Christiano, Martin Eichenbaum, and Sergio Rebelo, 2011, “Why is the Government Spending Multiplier Large?” *Journal of Political Economy*, 119(1), February, pp. 78-121.

¹⁰ Krugman, Paul R., 1998, “It’s Baaack: Japan’s Slump and the Return of the Liquidity Trap,” *Brookings Papers on Economic Activity*, 2, pp. 137-205.

¹¹ It is important to note the zero-bound literature has largely concentrated on the case of large, closed economies. In a small open economy (say a smaller advanced economy), the real interest rate is primarily determined in global markets, so a significant share of any stimulus will end up affect the current account deficit, not the interest rate.

fiscal and monetary policy stabilization policy that one gets in a simple IS-LM model (or a richer New Keynesian model) fails to consider the nearly infinite dimensionality of fiscal policy (who pays and who receives), and the concomitant political issues that invariably arise. By contrast, monetary policy is extremely narrowly focused.

Before the new weight given to fiscal policy in stabilization, the monetary rule could be designed rather straightforwardly and still be somewhat resistant to fiscal volatility. That is no longer so clear in the United States. With fiscal policy aspiring to a more active role – and at the zero bound for interest rates, the lead role – the efficacy of simple monetary rules is no longer clearcut. The problem is even more severe in a situation where, as in the United States after the pandemic, there is fundamental disagreement over the model both within the government and within the academics, making the central bank's choices far more difficult. Prior to the financial crisis, the role of fiscal policy in a recession was to provide insurance and a strong social safety net, if necessary running a large deficit. However, because of difficulties in timing and reaching consensus, it was not given a lead role in short-term stabilization except, of course, in the case of natural catastrophes such as COVID-19 or war. In a world where politically-driven fiscal policy has a co-equal or lead role in short-term stabilization policy, it is difficult to see how central bank credibility can be maintained at the same level as in the past.

If there were an appetite to maintain central bank independence, of course there are many measures that can help reinforce it and there has been experimentation around the world; it is not at all clear there is any appetite for that in the United States. Progressives, in fact, might want to see the central bank become more institutionally subordinate to the Treasury, while some conservatives prefer having the Fed follow more algorithmic interest rate rules, taking away discretion if not necessarily independence.

Innovation to Reboot Central Bank Independence: Higher Inflation Targets vs Effective Negative Interest Rate Policy

The political roots of discontent with central bank independence run deep. The 2008-09 financial crisis has produced a strong populist reaction against a broad range of orthodox economic institutions and policies, from financial firms to globalization. But surely the zero bound on interest rates has played a key role. If indeed large-scale purchases of government debt (which I prefer to term “pure” QE as opposed to “fiscal QE” purchase of private assets) are effectively just a form of maturity transformation, then treasuries and finance ministries can easily undertake QE on their own. QE may have some effect given segmentation in market between entities that can hold reserves (and therefore freely substitute with treasuries) and the general public. But the tight arbitrage between the rate of interest on bank reserves and one-week treasuries (which tend to pay a slightly lower interest rate), not to mention extensive experience and empirical work, reinforced the view that pure QE is a very weak instrument outside severe crisis episodes when market functioning is impaired. For years, most central banks had difficulty bringing inflation up to target from below even with massive quantitative easing policies.

As already noted, one idea that has been widely advocated for restoring the efficacy of conventional interest rate policy has been to raise the inflation target to 4%.¹² If credible, the idea would be to raise the general level of interest rates so there is more room to cut in a recession. The idea has merits but also significant drawbacks, as noted in Rogoff (2016, 2017).¹³ First and foremost, having abandoned the 2% target deeply ingrained in expectations, it might prove difficult to re-anchor expectations, and to eliminate lingering uncertainty about whether further changes might be coming. Very importantly, if the length of contract intervals remains the same, there will per force be greater dispersion in prices, creating inefficiencies. On the other hand, if recontracting is more frequent, or inflation indexing becomes more prevalent, then monetary policy becomes less effective. Simply put, the central bank will need larger interest rate cuts to achieve the same effect, and much of the benefit of raising the inflation target will be lost. Nakamura et al. (2018) find that during the 1970s price dispersion did not become larger, but of course this would require more indexing or more frequent adjustment.¹⁴ (Unless wage and price setting to become highly synchronized, which does not seem empirically likely except perhaps for a highly unionized country with nationwide wage setting.) Perhaps most importantly, the central bank would almost surely hit hard against the zero bound in any deep recession; the extra two percent rope would not be enough according to most estimates. (Again, in a deep financial crisis or a pandemic, of course fiscal policy is especially important, but there tend to be crisis situations when (at least limited) consensus is easier to achieve.)

A much more elegant way to restore the efficacy of monetary policy in an exceptionally low interest rate environment would be to take the steps necessary to invoke deep negative interest rate policy. Until now, no central bank has tried this, or come close to doing so. There are number of legal and institutional challenges, but by far the main one is how to prevent wholesale arbitrage (e.g., by insurance firms, pension funds and banks) from all interest-bearing assets into paper currency. Even the main complaint from the banking sector, that they cannot easily pass on the costs, ultimately stems from the fact that customers have the option of substituting into zero-interest paper currency if rates become too negative. (Recent research does appear to suggest that the zero bound is not terribly meaningful for large depositors even in the current regime.)

Admittedly, given only limited experience, it is difficult to be certain whether interest rate policy would have the same effects in negative territory that it does when policy rates are positive. The limited amount of research that has been undertaken to date suggests that it does have similar effects, if perhaps muted (see, for example Altavilla et al. (2022), Bottero et al. (2019), Ulate

¹² The first analytical paper to analyze a 4% inflation target is Fuhrer, Jeffrey, and Brian Madigan, 1997, "Monetary Policy When Interest Rates Are Bounded at Zero," *Review of Economics and Statistics*, 79, December, pp. 573-85. Kenneth Rogoff, 1998, points to the earlier Fuhrer and Madigan paper in "Comment on Paul Krugman, 'It's Baaack: Japan's Slump and the Return of the Liquidity Trap,'" *Brookings Papers on Economic Activity*, 2, pp. 194-99, and also in Kenneth Rogoff, 2016, *The Curse of Cash*, Princeton University Press.

¹³ Kenneth Rogoff, 2016, *The Curse of Cash*, Princeton University Press and Kenneth Rogoff, 2017, "Dealing with Monetary Paralysis at the Zero Bound," *Journal of Economic Perspectives*, 31(3), pp. 47-66.

¹⁴ Emi Nakamura, Jón Steinsson, Patrick Sun, Daniel Villar, 2018, "The Elusive Costs of Inflation: Price Dispersion during the U.S. Great Inflation," *Quarterly Journal of Economics*, 133(4), pp. 1933-1980.

(2021)).¹⁵ But precisely because no central bank has taken steps to eliminate the effective zero lower bound, existing results surely considerably understate what the effects would be if a rate cutting cycle, once initiated, were not bounded.

Indeed, it is curious that with tens of dozens of papers published in top journals on how to deal with the zero bound, including all kinds of out-of-the-box ideas, more attention is not given to the relatively simple steps required simply to remove the zero bound. If this could be done, it could potentially restore the efficacy of monetary policy in a low interest rate environment, defuse calls for excessive reliance on difficult-to-calibrate fiscal policy, and help to refocus central banks on monetary policy where they have competency and comparative advantage.

There are multiple ways to deal with cash arbitrage but two stand out as simplest and cleanest. One is to gradually phase out paper currency except perhaps for small notes (which would make large-scale arbitrage into paper currency impractical). If one restricts attention to legal, fully-tax compliant transactions, such a transition has been underway for decades. The second approach effectively involves making the trade-in value of cash (at the central bank) depreciate over time, at a rate calibrated to match the path of negative interest rates.¹⁶ (By the same token, the rate can be made to appreciate during times reserves pay a positive interest rate.) Such a system would create an exchange rate between electronic currency and cash, which would be controlled by central bank. (For the history of this idea, which goes back at least a century to Robert Eisler and in a cruder form to the treasury of Kublai Khan, see Rogoff (2016).¹⁷) With this simple institutional change, the problem of paper currency arbitrage is virtually eliminated. Of course, negative rates are indeed a tax on currency, but if designed symmetrically, they can also be a subsidy to currency when rates are positive. If negative rates are part of a system that keeps overall inflation low, then it is not at all obvious the real tax on cash would be any higher than if, say, the inflation target were raised substantially.

Both approaches to dealing with cash arbitrage have their virtues, and the choice really depends on the extent to which one believes it is important to preserve large denomination notes. I have argued elsewhere that the net cost to society of large denomination notes is negative, but the debate over negative interest rates should be entirely separate, since there exist perfectly satisfactory approaches that do not involve scaling back cash usage at all.

Given the huge stakes, the profession's lack of interest in engaging more seriously on how to implement open-ended negative rates issue is puzzling indeed; the most casual objections are

¹⁵ See Carlo Altavilla, Lorenzo Burlon, Mariassunta Giannetti, and Sarah Holton, 2022, "Is there a zero lower bound? The effects of negative policy rates on banks and firms," *Journal of Financial Economics*, 144(3), June, pp. 885-907. See also Margherita Bottero, Camelia Minoiu, José-Luis Peydro, Andrea Polo, Andrea F. Presbitero, and Enrico Sette, 2019, "Negative Interest Rates and Portfolio Rebalancing: Evidence from Credit Register Data," IMF Working paper 19/44, February. See also Mauricio Ulate, 2021, "Going Negative at the Zero Bound: The Effects of Negative Nominal Interest Rates," *American Economic Review*, 111(1), pp. 1-40.

¹⁶ There can be a wedge between the rate of depreciation on physical currency and the rate of return on electronic bank money, because the two are not perfect substitutes, and the way central banks set the depreciation (appreciation) rate on cash needs to take this into account (Rogoff (2016)). However, in a negative interest rate environment, wholesale arbitrage will likely keep this wedge fairly low.

¹⁷ Kenneth Rogoff, 2016, *The Curse of Cash*, Princeton University Press.

easily dismissed. Perhaps it is because the study of financial plumbing is not as appealing to journals. Of course, there is a completely legitimate concern that overly negative *real* interest rates will lead to financial excess, uneconomic investments, and lead to financial crises. But presumably central banks would only turn to negative interest rates in a sustained deflationary environment where weak demand was significantly weighing on growth, or in a deep recession (such as caused by a financial crisis) where asset prices are already depressed. In electing to push nominal interest rates into negative territory, the same considerations should apply as when central banks cut interest rates during times where the neutral real rate is nearer to historic norms and inflation at or above trend.

To the extent there are justifications for why researchers have not been more open to studying how to remove the zero bound, perhaps the most reasonable is the assertion that psychologically, people would not accept having their currency go down in value in nominal terms. Obviously, this places a huge weight on nominal illusion; the typical person is keenly aware that high inflation eats away at the value of their nominal assets including cash. They do not like it, but no one suggests it is politically impossible, even double-digit rates of inflation. Practical central bankers, who have experimented with negative rates, cannot be blamed for failure of experimentation, they have been more imaginative than massive academic literature which treats the zero bound as an immutable fact of nature. Of course, if the current high inflation turns into the Second Great Inflation, and if real interest rates regress towards long-term trend, perhaps this debate can be temporarily deferred. To be clear, if central bank independence is to be restored, if we are to have central bank independence 2.0, some approach to re-establishing normally interest rate policy will have to be a part of it. In my view, despite the rather closed-minded reaction from much of the academic profession, establishing open-ended negative interest rate is the preferred solution.

Would the Federal Reserve have waited as long as did to raise interest rates in 2022, if it knew it had an effective policy for reversing course if it overshot and put the economy into recession? Perhaps the answer is still yes, given all the political pressures that were brought to bear. But the option of negative rate policy would have taken away one of the strongest arguments for hesitation. Lastly, I have not stated this, with in all-digital world (there can be some residual smaller paper bills), there is simply no obstacle to taking policy interest rates deeply negative if needed. It can work with a central bank digital currency, but there is absolutely no need for it. Negative rate policy can work perfectly well within the current two-tier banking system.

De-Globalization and Global Inflation

I have already discussed how the zero bound and the ascendancy of more forceful countercyclical fiscal policy create significant problems for central bank independence. Another factor going forward is the potential for a retreat from globalization, as well as adverse demographics. In their widely cited 2020 book, Goodhart and Pradhan emphasize two key factors they argue may prove inflationary over the coming couple of decades. First, if one accepts that the rise of China has been a huge deflationary force until now, then the rapid aging of the Chinese economy could turn this effect into reverse. China is expected to have two hundred million less worker by the year 2040, and the population by 2100 is expected to shrink

from 1.4 billion people today to less than one billion, and perhaps as little as eight hundred million. If India and Africa are unable to substitute for China over the next couple of decades, this amounts to a massive decline in global productivity. They argue this will mean much higher inflation. Their argument is powerful except that it neglects a key element: regardless of real factors (demographics, trade, etc.), the long-term inflation rate is completely controlled by the central bank. So, the Goodhart Pranab analysis begs the question of why exactly a reversal in globalization should lead central banks to make different choices of the long run.

In fact, Rogoff (2004) addresses exactly this fundamental question.¹⁸ That paper tackled the prior question of why expanding globalization might be disinflationary, much as Goodhart and Pranab argue that future falling globalization (mainly due to demographic trends) is likely to be inflationary. To address this question, one needs to develop a model where political economy factors can impinge on equilibrium inflation, a dynamic that has been largely assumed away in the mainstream New Keynesian central bank literature but, as I argue here, may again be coming to the fore. My 2004 paper developed such a model (albeit only a super-simple illustrative one) to argue that if increasing globalization increased price flexibility and reduced monopoly power, then it is quite plausible it would lower equilibrium inflation on a lasting basis. This argument (which would run in reverse with deglobalization) is critical. In essence, the period of rapid globalization made it easier for central banks to credibly bring down inflation, making it appear that simply announcing inflation targeting did all the work. Going forward, a retreat from globalization, if it transpires, will make the pressures on central banks greater and their jobs harder. Obviously, there are severe limitations to making a political economy model of central banking realistic. Nevertheless, the discipline of writing down such a model allows one to sharpen the distinction between what kind of shocks and changes lead to lasting higher trend inflation, and what kinds of shocks are likely to have only very short-term effects. (In the model of Rogoff (2004), supply shocks that do not change the underlying structure of the economy do not have a lasting impact on inflation even if long-lasting and sustained.)

Challenges to Central Bank Efficacy and Independence from Innovation in Digital Currencies

I have spent some time on the trends of the past 14 years that have undermined central bank independence and suggested an important measure to deal with it. But in some ways even bigger challenges may be around the corner, stemming from the proliferation of digital assets. This is a huge and fast-evolving topic, which I covered in the final chapters of my 2016 book on the past, present and future of money. I do not have time in this lecture to devote nearly enough space to this issue, but it is important to mention before concluding, precisely because it again shows how important it is to keep political economy front and center in designing central bank frameworks and policies.

A central thesis of my 2016 book is that if one looks at the long history of money, innovation almost always comes from the private sector, but in time, the government always regulates, and often appropriates. Standard coinage was in private use long before the King of Lydia issued the

¹⁸ Rogoff, Kenneth, 2004, "Globalization and Global Disinflation," *Monetary Policy and Uncertainty: Adapting to a Changing Economy*, pp. 77-112, Federal Reserve Bank of Kansas City, Monetary Policy and Uncertainty conference.

first government coinage. Paper currency (“flying money”) was in private use centuries before Marco Polo came to witness the “alchemy” of Kublai Khan’s Mongol treasury. The same story repeats itself in other places and other times as money is invented and recurs as more sophisticated forms of exchange develop. I go on to argue that it is folly to forget that digital currencies, and crypto currencies, will eventually be heavily regulated, and central banks may well some day issue their own digital currencies.

This may all prove true, but history suggests that one must be cautious in predicting the time dimension over which such changes will take place. Past private financial innovations have typically taken decades, if not even centuries for governments to fully regulate, much less usurp. What does this imply about the timing and long-run for cryptocurrencies? Well, I do believe that in the long run, decentralized pseudonymous currencies will either be decrypted (in which case they will be dominated by lower cost centralized alternatives), or else they will be banned in advanced economies. By “banned,” I mean that they cannot be used in any legal transactions and attempts to use them without reporting would be vulnerable to same techniques governments use to trace off the books cash transactions. In principle, and possibly also necessary, the government could also ban holding cryptocurrencies. However, one must be careful to emphasize that even if the United States and all advanced economies (and China) were to ban crypto, there would almost surely be holdouts, at a minimum among rogue states, and quite possibly in developing countries. Not all countries have same incentives, for reasons it is hardly necessary to explain given the outbreak in 2022 of war in Europe.

However, even if a ban does eventually come, it could take years, even decades to work its way through the political system. If Bitcoin can be used widely for say, another two or three decades, (to avoid taxes, capital controls and regulations) it can still have great value today given its latent transaction uses (which I have documented in recent work with Reinhart and von Luckner). Consider that fossil fuel companies have massive valuations even though their products may some day be taxed into oblivion (at least in advanced economies).

One especially important reason the political system might take decades to come to a resolution is that the industry has already been immensely powerful and influential, using its resources to lobby politicians for favorable regulatory treatment. Twenty percent of the advertising time for the 2022 Super Bowl – was purchased by crypto-related companies. Given the balkanization of regulatory law in the United States, and failure of Congress to address the problem, there is competition among states to become the most crypto friendly environment. Many pension funds and banks are moving into crypto, making regulation that might drive down the price harder. With exceedingly high returns in the crypto industry, regulators have a nearly impossible job competing for talent. There are eerie parallels between the impact of financial engineering on system risk in the last 1990s and early 2000s, and crypto today, with regulators being told that they lack the expertise to regulate and could not if they wanted to.

There is also a second element to crypto currency regulation which is arguably quite different than previous transactions innovations, at least in degree. International cooperation is difficult to achieve in part because although the cooperative solution may involve strong regulation, individual countries may have an incentive to court the industry, even if the flourishing of the

industry in one country hits others with negative externalities. Indeed, we are already seeing this across emerging markets, where crypto has become a major problem for treasuries and finance ministries, helping to facilitate tax avoidance and capital flight (I again refer to my work with Reinhart and von Luckner)¹⁹. Of course, until the United States federal government takes decisive action, a similar problem is at play across states. (White papers issued by the Biden administration and the Federal Reserve to date clearly do not show any great movement in coming to grips with the problem.)

At present, many countries, from the United Kingdom to Singapore, are competing to become capitals of crypto, the Switzerlands of the digital age. Some have argued that the United States should toss its hat in the ring, dominating Web 3.0 as it has dominated the internet. One possible future would be, instead of issuing a central bank digital currency, the US could allow a group of regulated stable coins, backed by US issued securities, to thrive. Americans would be allowed to use the stable coins freely, effectively an alternative to conventional bank accounts, provided the stable coins issuers are required to conform to the usual AML and KYC information, and allowed the government to audit transactions in much the same way it can now audit debt and credit card transactions.

What about central bank digital currencies? From the preceding discussion, we can see that the incentives for smaller economies are vastly different than the incentives for issuers of major currencies, such as the dollar, yen, euro and renminbi. For the major currencies, there may well be a gain to issuing a wholesale digital currency to enhance operation of the financial system. But it is far from obvious that a CBDC offers anything that cannot be achieved through an evolution of the current system as real-time retail clearing becomes universal, and as Stablecoins become more prevalent. For a small central bank, it is a completely different game, where the benefits from establishing an internationally accepted cryptocurrency are considerable, and the costs are mostly born outside the country.

Conclusion

Academic research in the inflation targeting era has taken central bank independence far too much for granted. In fact, favorable tailwinds from globalization and technology made balancing growth and inflation easier and reduced political economy pressures. Over the past decade, however, the effective lower bound on interest rates has undermined the effectiveness of the instrument over which the central bank has the most independent control, which is also the most powerful instrument in their arsenal. Meanwhile, populism has intensified pressures on central banks. Now, a retreat from globalization is turning tailwinds into headwinds, and could make the political economy pressures on central banks considerably more intense, potentially leading to higher (time-consistent) equilibrium inflation rates. Meanwhile, the rapid move towards digital currencies also places pressures on the effectiveness of central bank instruments, pressures that will likely need to be met with a much stronger regulatory than most advanced economies have seen so far. The world has arrived at a new era of political economy and having independent

¹⁹ Graf von Luckner, Clemens, Carmen M. Reinhart, and Kenneth S. Rogoff, 2021, "Decrypting New Age International Capital Flows," NBER Working Paper 29337, October.

central bank has taken on new importance. But to deal with the significant political and technical changes that they are facing, central banks too need to innovate.