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Monetization of Fiscal Deficits and COVID-19: A Primer*

Aidan Lawson[†]
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ABSTRACT

Monetization—also known as “money-financed fiscal programs” or “money-printing”—occurs when a government finances itself by issuing currency or other non-interest-bearing liabilities, such as bank reserves. It poses real risks—potentially excessive inflation and encroachment on central-bank independence—and some paint it as a relic of a bygone era. The onset of the COVID-19 crisis, however, forced governments to spend heavily to combat the considerable economic and public health impacts. As government deficits climbed, monetization re-entered the conversation as a way to avoid the massive debt burdens that some nations may face. This paper describes how monetization works, provides key historical examples, and examines recent central-bank measures. Based on our definition, much of what many are calling monetization today—in particular, central banks directly buying massive amounts of their own government’s bonds—is not necessarily monetization. To our knowledge, no central bank during the COVID-19 crisis took an action that meets our definition or explicitly stated that it was conducting monetization.

Keywords: monetization, monetary policy, fiscal policy, monetary finance

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Introduction

Governments around the world introduced huge stimulus programs to combat the economic damage caused by COVID-19. These programs allocated billions of dollars in direct payments, tax breaks, business subsidies, and other relief. The size and scale of these programs caused many governments to run much higher budget deficits than normal. But how were they going to finance these deficits? One way, which some consider anathema to the price-stability mandate of a central bank, was thrust back into the spotlight as the crisis raged on: sovereign debt monetization.

But what exactly is monetization? We define monetization—also known as “money-financed fiscal programs” or “money-printing”—as any effort by a government to finance itself by issuing non-interest-bearing liabilities. Those liabilities could be currency, or they could be bank reserves, if the central bank can avoid paying interest on them.

By monetizing debt, the government seeks to use inflation to finance its spending. In a deflationary environment such as the COVID-19 crisis, with economies shrinking by as much as one third on an annualized basis, monetization could help a central bank stabilize prices while providing a mechanism to fund rescue and stimulus programs.

In the first part of this paper, we briefly describe how monetization can work. The central bank can buy government debt and not require repayment, or similarly, promise to roll that debt over indefinitely. Or it could create central-bank accounts for the public, an idea with growing support.¹ A complication is that most central banks now pay interest on the reserves that banks hold with them. So just buying government debt would not be costless to the government; it would simply substitute the interest paid on Treasuries for the interest the central bank pays on reserves. We explain that, if a central bank has no choice but to pay interest on reserves, it would have to combine its government debt purchases with convincing guidance that it has temporarily raised its inflation target. The scope for using inflation for this purpose is related to the ratio of a country’s base money—currency plus non-interest-bearing bank reserves—to its gross domestic product (GDP). When modeled, a program that costs about one percent of GDP that is fully monetized corresponds to about a 10 percent increase in the price level.²

Of course, the mere hint of monetization conjures fears of government overreach and excessive inflation. Many countries do not allow their central banks to buy government debt

¹ Coronado, Julia, and Simon M. Potter. “Securing Macroeconomic and Monetary Stability with a Federal Reserve-Backed Digital Currency.” *Peterson Institute for International Economics (PIIE)*. Policy Brief 20-4. March 2020

² English, William B., Christopher J. Erceg, and David Lopez-Salido. “Money-Financed Fiscal Programs: A Cautionary Tale.” *Brookings Institution: Hutchins Center on Fiscal and Monetary Policy*. Working Paper #31. June 2, 2017 – p. 1.

at all. Some allow only limited amounts to be purchased to cover short-term cash needs.³ Others require the government to repay the central bank quickly.⁴ Milton Friedman, conservative economist and historian of the Great Depression, coined the term “helicopter money”—to escape a deflationary recession through money printing—50 years ago. Critics pounced on former Fed chair Ben Bernanke when he mentioned Friedman’s suggestion in 2002, but he still has not backed down from his view that “governments should never have to give in to deflation.”⁵

In the second part of this paper, we describe historical examples of monetization in practice. Quantitative-easing (QE) programs that various central banks introduced during and after the global financial crisis of 2007-09 were not monetization programs. Indeed, despite trillions of dollars of debt purchases by central banks, inflation hardly stirred. Banks held the new cash in reserves, the growth in the broader money supply remained muted, and the money multiplier shrank.⁶ As Janet Yellen, former Fed chair, and proposed future head of Treasury, recently intimated, central banks know how to subdue inflation, but deflation continues to puzzle them.⁷

In these examples, a common concern expressed about monetization is that a central bank will lose its independence. Once a legislature realizes it has a limitless buyer for debt, the story goes, it will abandon all fiscal control. Such “fiscal dominance” is real. For example, it was explicit policy in India before a series of reforms in the 1980s and 1990s.⁸ But Bernanke has argued that the record of central bank independence suggests that close cooperation between a country’s central bank and its treasury can be perfectly appropriate during difficult times, when their interests are clearly aligned.⁹ During the world wars, as we describe, the Fed temporarily monetized expansive fiscal policy at the expense of its independence.

In the third part of the paper, we describe measures that central banks took in the first six months of the COVID-19 crisis that some described as monetization. Many central banks, including several in emerging markets, established or reinstated asset purchases and QE programs in 2020. Meanwhile, debt levels rose across the world, especially in developing

³ Bank of England. “HM Treasury and Bank of England announce temporary extension to Ways and Means facility.” April 9, 2020.

⁴ “Monetary Board approved additional Pp 300 billion support to the National Government to fight COVID-19.” *Bangko Sentral ng Pilipinas (BSP)*. March 22, 2020.

⁵ Bernanke, Ben S. “What tools does the Fed have left? Part 3: Helicopter money.” *Brookings Institution*. April 11, 2016.

⁶ Dugal, Ira. “Monetisation Neither a Game Changer nor a Catastrophe, says Raghuram Rajam.” *Bloomberg Quint*. May 8, 2020.

⁷ Yale Program on Financial Stability (YPFS). “The Economic Policy Response to COVID-19.” July 13, 2020.

⁸ Reserve Bank of India. “Fiscal-Monetary Co-ordination in India: An Assessment.” March 4, 2013.

⁹ Bernanke, Ben S. “Monetary Policy in a new era.” *Brookings Institution – Hutchins Center on Fiscal and Monetary Policy*. October 2, 2017.

countries.¹⁰ Based on our research, however, no central bank explicitly labeled its programs monetization. On the contrary, several took measures to make clear that monetization was not part of their strategy.

In the fourth part of the paper, we ask: If central banks wanted to monetize their debt to support their COVID-19 responses, would they be able to? Our analysis suggests that a country's capacity for "safe" monetization depends on its level of economic development, the central bank's credibility, and the current economic environment. Countries that have persistently low inflation, credible central banks, and strong economic fundamentals could potentially monetize some of their COVID-19 spending without excessive inflation or a loss of central bank independence. Countries that do not have a large amount of fiscal space and are struggling to obtain external financing or issue debt face greater risks from monetization.

1. What is monetization?

Most of the time, governments have two basic choices for financing their deficits: they can borrow (issue debt) or raise taxes. Monetization represents a third, unconventional choice that governments may consider in crises like the current one.

What is it? Simply put, monetization—also known as "money-financed fiscal programs" or "money printing"—occurs when the government finances itself by issuing non-interest-bearing liabilities: that is, either currency in circulation or central bank reserves, if the central bank can avoid paying interest on those reserves.

Monetization can solve several problems for a government during the COVID-19 crisis. First, it can directly cover some of the costs of extraordinary recovery programs. Second, it can mitigate deflation and stimulate moderate inflation. Third, by increasing inflation, it can reduce to some extent the value of its outstanding obligations. Stimulating inflation is a necessary part of the plan. A central bank financing government spending—by purchasing government debt directly or crediting the government the amount needed—is not monetizing that spending unless it also stimulates inflation.

The fact that most central banks now pay interest on bank reserves complicates the process of monetization.

Without interest on reserves, monetizing debt would be easier. The government would issue enough bonds to pay for its fiscal program, and the central bank would then purchase those bonds, committing to hold them in perpetuity or to roll them over forever. The government would spend the "money" that the central bank has created on any short-term stimulus, or COVID relief, that it has identified as necessary. In the short run, that money would end up

¹⁰ Sindreu, Jon. "Who Says Emerging Economies Shouldn't Print Money?" *The Wall Street Journal*. June 30, 2020.

at banks, as people and businesses deposit their checks from the government. But banks wouldn't want to keep their excess reserves with the central bank, where it earned no interest. Much of the money would flow back into the economy through loans, and thereby boost aggregate demand. The stronger demand would, in turn, increase inflation, which would gradually reduce the real value of currency and reserves back to their initial levels. As a consequence, the government would end up having financed its fiscal action by creating base money: by spurring growth in both reserves and currency.

But, in reality, most of the largest central banks in the world do pay interest on reserves today.¹¹ The interest rate they pay, even if it is small, gives banks an incentive to keep their reserves with the central bank. This confounds the process of monetization described above, since the interest the central bank pays on reserves merely substitutes for the interest payments the government pays on its debt. With a few key adjustments, financing government spending while paying interest on reserves can achieve results similar to the circumstance where the central bank doesn't pay interest on reserves.

With interest on reserves, a central bank would still directly purchase and commit to roll over the government's debt to initially finance the fiscal program. But it would also commit to raising prices to a high enough level that the additional demand for nominal currency would be sufficient to finance the debt purchase. Essentially, this means that there would be some temporary but moderate inflation (say, above the common 2% target but still in single digits), which would reduce the real value of the currency stock and increase the demand for currency. As a result, seigniorage—the profit generated by the government from printing money—would be used to help finance the fiscal action.

For this to work, the public must perceive the central bank's commitment to expanding base money as credible and permanent. Otherwise, the short-run economic impact would be far less.¹² The central bank could instead communicate that it would only monetize a certain amount of government debt. But committing to raise the price level alongside expansionary fiscal policy sends a stronger message to the public that the increase is indeed permanent; not articulating this message may have unpredictable effects on inflation.¹³ When modeled, a program that costs about 1 percent of GDP that is fully monetized corresponds to about a 10 percent increase in the price level.¹⁴

This scenario differs from how debt monetization has often been defined by media and some academics, where any purchase of government debt by the central bank is termed

¹¹ Nelson, William. "Why paying interest on reserves *is* good for lending." *American Banker*. June 5, 2017.

¹²English, William B., Christopher J. Erceg, and David Lopez-Salido. "Money-Financed Fiscal Programs: A Cautionary Tale." Forthcoming – p. 3.

¹³ English, Erceg, Lopez-Salido (Forthcoming) – p. 26.

¹⁴ English, Erceg, Lopez-Salido (2017) – pp. 12-13.

monetization.¹⁵ But a central bank really is not monetizing if it finances its purchases through (interest-bearing) reserve creation and if it does not intend to raise the price level. By our definition, recent attempts to flood financial markets with liquidity via the purchase of government bonds (among other instruments) are not monetization. Nor are the Federal Reserve's purchases of large amounts of Treasury debt as part of its quantitative easing (QE) programs during both the Global Financial Crisis (GFC) and the COVID-19 crisis.¹⁶

One of the biggest challenges in determining whether monetization has actually occurred is that it is not immediately clear whether debt purchases by the central bank satisfy the requirements that we have outlined above: rolling the debt over indefinitely, and temporarily committing to a higher price level. The Bank of Japan (BOJ), for instance, has continually purchased Japanese securities proportionate to the amount of the fiscal deficit over the past 25 years but has never explicitly stated that monetization is its intent.¹⁷ The size of its balance sheet has only increased and it has made no major efforts to sell its bond holdings. However, the BOJ financed these purchases through reserve creation; it has been unable to generate consistent inflation and spur demand for its domestic currency stock.¹⁸ The BOJ in 2016 did say that it would be aiming to overshoot its inflation target while keeping the rates on government debt close to zero, an important step in a seigniorage-based monetization framework.¹⁹ Nonetheless, it has still undershot this target and has been unable to generate the seigniorage needed to pay for fiscal actions.²⁰

a. Why has monetization not been more widely used?

The primary concern about engaging in monetization is the fear that it will lead to excessive and uncontrollable inflation. Since monetization is, by definition, a permanent increase in non-interest-bearing liabilities of the central bank (in this case, currency), the policy should be expected to lead to some inflation. However, this increase is intended and necessary in order to generate enough seigniorage to finance the fiscal program. The increased inflation generated is not inherently a bad thing if it is moderate, temporary, and communicated clearly by the central bank. Uncontrolled monetization can cause currency crises in fixed-exchange-rate regimes and lead to excessive inflation. These crises can be exacerbated in less-developed countries with a substantial amount of foreign-currency-denominated debt,

¹⁵ Cheng, Jeffrey, Dave Skidmore, and David Wessel. "What's the Fed doing in response to the COVID-19 crisis? What more could it do?" *Brookings Institution – Hutchins Center on Fiscal and Monetary Policy*. July 17, 2020.

¹⁶ "Recent balance sheet trends." *Federal Reserve Board of Governors*, last updated November 30, 2020.

¹⁷ Turner, Adair. "Monetary Finance is here." *Project Syndicate*. April 20, 2020.

¹⁸ "Bank of Japan Accounts." *The Bank of Japan*, last updated December 2, 2020.

¹⁹ Kihara, Keika, and Stanley White. "BOJ overhauls policy focus, sets target for government bond yields." *Reuters*. September 21, 2016.

²⁰ "Inflation, consumer prices for Japan." *Federal Reserve Bank of St. Louis – Federal Reserve Economic Data (FRED)*, last updated December 2, 2020.

as the increase in domestic currency puts pressure on the exchange rate, weakening the domestic currency and increasing the cost of servicing their debt.

A central bank in a fixed-exchange-rate regime under this sort of pressure may find that conventional methods of defending its currency (by raising interest rates, for instance) would create unacceptable economic costs at home. The central bank would have to choose between providing relief at the risk of breaking the peg, or defending the peg and allowing the economy to stagnate. “First-generation” currency crisis models address this very issue. These models outline a hypothetical country that runs persistent budget deficits while maintaining a fixed exchange rate. Eventually the government needs to monetize its deficit, putting downward pressure on the exchange rate, and the model predicts that the peg will break.²¹ Currency crises in Mexico and Turkey in the 1990s followed this model.

This phenomenon can also occur if there is widespread circulation and usage of other currencies, as people will flock to these if the domestic currency is under pressure. The risk of excessive inflation reflects the degree of monetization and the characteristics of the economy doing it.

Governments that have access to the printing press as a form of financing may also exercise far less fiscal discipline than otherwise. Issuing debt without the expectation of repayment could lead governments to spend excessively and overheat the economy.

This concern underscores the importance of central bank independence. Adopting monetization as a regular part of a central bank’s toolkit, or even setting a precedent that it is available, could gradually erode the barriers between monetary and fiscal policy, damaging the central bank’s credibility and limiting its ability to fulfill its mandate. Central bank credibility is a nebulous concept, yet it is absolutely critical when thinking about the impact that monetization can have. There appears to be a general relationship between economic development and central bank credibility, but there are a variety of factors that can affect it. The erosion of credibility could unhinge inflation expectations. A fiscally irresponsible government ultimately puts any central bank in an impossible situation. If it does not monetize the deficits, interest rates on government debt will rise, which could increase the probability of default. Eventually, the central bank will have little choice but to monetize. This phenomenon—when a central bank is forced to monetize an unsustainable, out-of-control deficit to avoid negative economic outcomes—is known as fiscal dominance.²² Thus, long-run fiscal sustainability is key in ensuring that central banks are able to fulfill

²¹ Glick, Reuven, and Michael Hutchison. “Currency Crises.” *Federal Reserve Bank of San Francisco*. September 2011.

²² Mishkin, Frederic S. “Central Banking After the Crisis.” *Columbia University Graduate School of Business and National Bureau of Economic Research*. November 2012 – pp. 34-37.

their price-stability mandates and remain credible. The lack of fiscal discipline ultimately affects the independence of the central bank.

There are other issues. Monetization can circumvent the market-pricing mechanism in secondary markets by allowing the government to issue debt at lower interest rates. The Fed expressed this concern back in 1917, when the U.S. Treasury offered it \$50 million in bonds at far below-market rates. The cheap credit for the government can also lead to moral-hazard concerns, if the central bank commits to low interest rates along the yield curve. Excessive spending could also lead to crowding out of private borrowers, though this may not be an issue if the central bank doesn't allow interest rates to rise. These are some reasons why monetization has been generally characterized as a last-resort authority.²³

2. How has monetization been used historically?

Governments have used monetization most often in the past as a mechanism for war financing. Wars are typically financed through some combination of taxation, debt financing, external financing, and monetization. Monetization is typically the easiest option, provided that central bankers are willing to cooperate. During wartime, it generally is not a politically sensitive policy and can be operationalized quickly. To finance huge wartime production needs via monetization, governments issue bonds that are then purchased directly by the central bank. The question of central bank independence does not have to arise in this case, since the incentives of the central bank and government are aligned.

Below are discussions of different countries' experiences with monetization, successful or not. In some cases, such as the Weimar Republic or Zimbabwe, the decision to monetize resulted in rampant hyperinflation. In others, like Japan during the Great Depression or France after World War I, monetization proved more effective.

a. The United States

In the U.S., Section 14 of the original Federal Reserve Act allowed the Fed to directly purchase government bonds. The earliest use of this authority was in 1917 during World War I, when Treasury Secretary William McAdoo offered \$50 million in three-month notes to Federal Reserve banks.²⁴ The Board of Governors was not happy, as the interest rates were below market rates, but ultimately acquiesced.²⁵ After World War I, the government continued to use this authority, albeit only for cash-management purposes, until Congress prohibited it in 1935. At the time, some policymakers expressed concerns about chronic deficits, the erosion

²³ Bernanke, "Helicopter money."

²⁴ Garbade, Kenneth D. "Direct Purchases of U.S. Treasury Securities by Federal Reserve Banks." *Federal Reserve Bank of New York*. August 2014 – p. 2.

²⁵ Garbade, "Direct Purchases." – p. 3.

of fiscal discipline, and ballooning Federal Reserve balance sheets. Treasury questioned Congress's decision, arguing that the Fed's ability to make direct purchases could be crucial in times of crisis.²⁶ Congress eventually accepted this argument. In 1942, it inserted a wartime exception that allowed the Fed to underwrite Treasury debt. But the exception was subject to a \$5 billion limit.²⁷ It was really just an overdraft privilege for the U.S. government to use when it was cash-poor, most notably around tax-collection dates. This exception, as well as other overdraft facilities, do not constitute monetization based on our definition.

Of the major wars that the U.S. participated in after World War I—that is, after the Fed became a truly independent central bank—it financed World War II only in part through monetization, based on our definition.²⁸ The Fed used the exception to help facilitate Treasury cash balances on tax collection dates during the war.²⁹ Because of the exception's limited size, however, the U.S. relied primarily on borrowing, and its debt ballooned from \$51 billion in 1940 to over \$260 billion in 1945.³⁰

In doing so, the Fed committed to pegging interest rates at low levels and offered an even lower preferential rate for loans secured by short-term government obligations.³¹ The Fed's balance sheet grew massively in its effort to keep rates low; its holdings of government securities rose from \$2.5 billion at the end of 1939 to \$24.3 billion at the end of 1945. Wartime price controls and rationing temporarily mitigated the inflationary effects, but their removal after the war caused a surge in the price level, which prompted the Fed to increase reserve requirements.³² After World War II, the Fed used the wartime exception sparingly until it was allowed to expire in 1981.

The Korean War was financed entirely through taxation, due to high post-World War II inflation and broad public support.³³ Nonetheless, high inflation in 1951 forced the reintroduction of wage and price controls.³⁴

Although the Fed did not monetize wartime debt during the Korean War, its independence was tested because it continued to maintain its low interest-rate peg. The Fed attempted to raise rates throughout 1950, believing the peg to be inflationary, but was blocked by the

²⁶ Garbade, "Direct Purchases." – p. 5.

²⁷ Garbade, "Direct Purchases." – pp. 9-10.

²⁸ Labonte, Marc, and Mindy Levit. "Financing Issues and Economic Effects of American Wars." *Congressional Research Service*. July 29, 2008 – p. 3.

²⁹ Labonte and Levit, "American Wars." – p. 10.

³⁰ See "Historical Debt Outstanding." *Treasurydirect.gov*, last updated October 2, 2020; "Historical Debt Outstanding – Annual 1900–1949." *Treasurydirect.gov*, last updated May 5, 2013.

³¹ Richardson, Gary. "Federal Reserve's Role during WWII." Federal Reserve History. November 22, 2013.

³² English, Erceg, Lopez-Salido (2017) – p. 25.

³³ Cappella, Rosella. "The Political Economy of War Finance." (PhD diss., *University of Pennsylvania*, 2012.

³⁴ Labonte and Levit, "American Wars." – p. 8.

Treasury to keep the government's debt-service costs manageable.³⁵ After a meeting between the Fed Chair and President Truman in early 1951, the President committed the Fed, without its consent, to maintaining the peg during the Korean War, just as it had done during the two world wars. This conflict between the mandate of the Fed and needs of the Treasury ultimately resulted in the Treasury-Fed Accord, which stated that the Treasury and Fed remained committed to financing the government's needs while minimizing outright Fed purchases of the debt.³⁶

b. Germany, Austria, and Poland after World War I

Governments have been known to continue financing their deficits through monetization even after a war has ended. After World War I, such policies led to out-of-control hyperinflation, with prices rising by factors of two or more *per month*, in Weimar Germany (1923), Austria (1922), and Poland (1924-27).

In the case of Germany, a reduced tax base, increased debt service, unrealistic reparation demands from the victors, and the erosion of the value of tax revenues through inflation created huge budget deficits. The central bank first attempted to solve this by fixing the exchange rate to slow inflation, which worked while the Reichsbank had sufficient reserves to support it. Ultimately, though, the central bank could not defend the peg and abandoned it, which necessitated further reform. The German government passed legislation in October 1923 that created a new currency. Under the legislation, the central bank could no longer purchase government debt. The government also raised taxes and reduced outlays.³⁷ The new currency, the Rentenmark, had a limited issuance and was backed by claims on industry and agriculture. One of the most important uses of the new currency was a "once and for all allocation" to the government to help it retire its existing debt while it passed fiscal reforms.³⁸ The central bank quickly got inflation and the exchange rate under control by pushing interest rates to extremely high levels, as high as 20% *per day* in December 1923. In 1924, a substantial reduction in reparations expectations and a large loan from the U.S. helped restore the fiscal and monetary balance.

Similarly, during and after the first world war, Austria increasingly funded its deficits via the printing press, which led to massive inflation and depreciation. Currency in circulation rose by nearly 1000% from the beginning to the end of the war.³⁹ The postwar government imposed artificially low price controls on agricultural products and enacted massive food

³⁵ Hetzel, Robert L., and Ralph F. Leach. "The Treasury-Fed Accord: A New Narrative Account." *Federal Reserve Bank of Richmond Economic Quarterly* Vol. 87/1 Winter (2001): 33-55. Accessed December 3, 2020 – p. 114.

³⁶ Romero, Jesse. "Treasury-Fed Accord." *Federal Reserve History*. November 22, 2013.

³⁷ Dornbusch, Rudiger, and Stanley Fischer. "Stopping Hyperinflations Past and Present." *National Bureau of Economic Research*. January 1986 – pp. 8-16.

³⁸ Dornbusch and Fischer, "Hyperinflations Past and Present." – p. 11.

³⁹ Ebeling, Richard M. "The Great Austrian Inflation." *Foundation for Economic Education*. April 1, 2006.

subsidies. Excessive inflation turned into hyperinflation in 1921 and continued into 1922. Inflation in the third quarter of 1922 was at an annual rate of 130,000%.⁴⁰ To stabilize, the government received a large foreign loan and was required to bring its budget back in line.

It took the Polish government three separate attempts to stabilize its economy from hyperinflation. Military conflict continued in Poland even after the end of World War I, and the government committed over 50 percent of its budgetary resources to defense spending.⁴¹ Due to a small tax base, most of these expenses were financed through the printing of Polish marks. As was the case in Germany and Austria, currency in circulation increased quickly, and depreciation followed. The government introduced austerity measures, which prompted a modest appreciation of the mark, but it did not stick to them and the inflation worsened. It then raised taxes, “valorizing” them, or indexing them to gold, and issuing a new currency that was pegged to the dollar. Initially these measures appeared to work. But budgetary and economic issues forced the central bank to defend the peg, and it ultimately broke. The money supply kept growing because the Treasury continued to issue small notes and mint coins, although the central bank was actively removing notes to defend the currency. Stabilization was finally achieved via a large U.S. and British loan and regulatory reforms that prevented the government from issuing treasury notes.

Each of these countries had extremely high postwar deficits that were almost entirely monetized and significant real economic and political turmoil that was worsened by other forces: punitive reparations (Germany), governmental instability and incompetence (Austria), or generally poor fiscal discipline (Poland). The Reichsbank in Germany purchased any and all of the government debt that the private sector did not want, providing the government a seemingly bottomless well of financing.⁴² The National Bank of Austria had the authority to provide credit to the state, and did so out of “fear for upheaval, social chaos, and anarchy.”⁴³ During World War I, occupying German forces created the Polish National Credit Bank that functioned as a temporary bank of issue until the Bank of Poland was established. It financed sky-high war expenditures using the printing press and continued to do so after the war due to a lack of fiscal capacity.⁴⁴ The degree of separation between central banks and finance ministries that is commonplace today simply did not exist. The central banks or

⁴⁰ Dornbusch and Fischer, “Hyperinflations Past and Present.” – p. 18.

⁴¹ Lopez, Jose A., and Kris James Mitchener. “Uncertainty and Hyperinflation: European Inflation Dynamics after World War I.” *Federal Reserve Bank of San Francisco* – p. 9.

⁴² Webb, Steven B. “The Supply of Money and Reichsbank Financing of Government and Corporate Debt in Germany, 1919–1923.” *The Journal of Economic History*, Vol. 44, No.2, (Jun. 1984): 499–507. Accessed December 3, 2020 – p. 501.

⁴³ Beer, Christian, Ernest Gnan, and Maria Teresa Valderrama. “A (not so brief) history of inflation in Austria.” *Oesterreichische Nationalbank (OeNB)*. 2016 – pp. 13-14.

⁴⁴ von Thadden, Goetz Henning. “Inflation in the Reconstruction of Poland, 1918–1927.” (PhD diss., *London School of Economics and Political Science*, September 30, 1994 – p. 10.

banks of issue in these countries were largely subordinate to the fiscal authorities, making it impossible for them to establish credibility and manage inflation.

In each of these cases, stabilization was achieved through the dramatic reduction of budget deficits, usage or proposal of foreign loans, and exchange-rate pegs. However, solely relying on a strict peg, or even a narrow band of exchange-rate targeting, may not be sufficient to stabilize the economy since a peg may not be sustainable. Fiscal discipline was necessarily enforced and regulatory reforms or legal restrictions limiting governments issuing money were eventually introduced.

c. Turkey in the 1990s

In the 1990s, Turkey experienced a serious economic crisis that had roots in excessive monetization. Turkey's economy rapidly expanded throughout the 1980s and early '90s; meanwhile, the government relied increasingly on monetization to finance huge deficits.⁴⁵ This lack of fiscal discipline, coupled with huge inflows of "hot" money from foreign investors and repeated financing conflicts with the central bank, eroded confidence and caused a currency crisis in 1994, and the economy spiraled into recession in 1999. Because of the significant dollarization of the economy, the monetary authority was unable to combat the recession because it had to raise interest rates to ward off downward pressure on the Turkish lira.⁴⁶ Ultimately, Turkey received a three-year IMF Standby Arrangement that required the authorities to curb the excessive inflation and reform their institutions and regulations.

d. Zimbabwe in the late 2000s

Perhaps the most noteworthy and most recent example of monetization-induced hyperinflation is Zimbabwe in the late 2000s. From 1980 to 1999, the country experienced modest growth, but the country's public debt climbed as the government spent heavily on bonuses for war veterans, involvements in other conflicts, and debt service to the IMF. The agriculturally focused country also experienced periods of heavy droughts and land reallocation at the turn of the century, depressing output dramatically.⁴⁷ Instead of financing these costs through taxation or issuing debt, the government—already managing a weak economy—heavily monetized them. By 2008, continuously monetized deficits created a deep currency depreciation that wiped out citizens' net worth and reduced GDP per capita

⁴⁵ Celasun, Oya. "The 1994 Currency Crisis in Turkey." *The World Bank, Policy Research Working Papers*. November 1999 – pp. 6–16.

⁴⁶ Akat, Asaf Savaş. "The Political Economy of Turkish Inflation." *Journal of International Affairs* Vol. 54, no. 1 (2000): 265-282. Accessed December 03, 2020 – pp. 276 - 277.

⁴⁷ Koech, Janet. "Hyperinflation in Zimbabwe." *Federal Reserve Bank of Dallas, Globalization and Monetary Policy Institute 2011 Annual Report*. 2011 – pp. 4-5.

below the level it had been 50 years earlier.⁴⁸ In response, the government introduced harsh price controls, which led to rampant shortages of key goods. The U.S. dollar, which was already one of the de facto currencies in the wake of this crisis, became the primary currency.

e. France

France's performance during and after World War I offers a more encouraging example of monetization. It depended heavily on borrowing and money growth to finance its expenditures during the war and saw its price level more than double.⁴⁹ While the government faced considerable challenges—a large debt-to-GDP ratio, huge budget deficits, damage from the war—its economy rebounded significantly.⁵⁰ This was because the Bank of France eased monetary policy and allowed the value of the franc to fall significantly before eventually repegging it to gold at a lower level in 1926. This decision increased inflation, which reduced the debt-to-GDP ratio, and also significantly increased output over time.⁵¹ On the other hand, the UK, which adopted a much tighter monetary stance and returned to its prewar peg to gold, saw much more sluggish growth.⁵²

France, in contrast to Germany, Austria, and Poland, did not exclusively finance its involvement in World War I through monetization. France, as a victor in the war, did not face the same fiscal imbalances that Germany and Austria did. Poland, which was partitioned by Germany, Austro-Hungary, and Russia at the start of the war, faced considerable political and economic turmoil even after the war's conclusion.⁵³ The French people may have also seen the Bank of France's change in monetary policy as credible in the face of its difficult fiscal circumstances.⁵⁴ Had France attempted to follow the UK's example of repegging earlier, it is likely that the adverse economic outcomes would have seriously damaged the government's credibility.⁵⁵

f. Japan during the Great Depression

Japan's performance during the Great Depression offers another encouraging example. Similar to France, its central bank and treasury cooperated in a monetary expansion, allowing it to recover quickly under the "Takahashi economic policy," named after finance minister Korekiyo Takahashi. Japan experienced double-digit deflation in 1930 and 1931, but Takahashi promoted expansionary exchange rate, fiscal, and monetary policies starting

⁴⁸ Koech, "Hyperinflation in Zimbabwe." – p. 5.

⁴⁹ Bordo, Michael D., Pierre-Cyrille Hautcoeur. "Why didn't France follow the British stabilisation after World War I?" *European Review of Economic History* Vol. 11, no. 1 (2007): 3-37. April 1, 2007 – p. 5.

⁵⁰ Bordo and Hautcoeur, "The French and British stabilization post WWI." – pp. 6-12.

⁵¹ English, Erceg, Lopez-Salido (Forthcoming) – pp. 27-28.

⁵² English, Erceg, Lopez-Salido (2017) – p. 24.

⁵³ Allen, Erin. "World War I: Restoring Poland." *Library of Congress Blog*. January 25, 2017.

⁵⁴ English, Erceg, Lopez-Salido (Forthcoming) – pp. 27-29.

⁵⁵ Bordo and Hautcoeur, "The French and British stabilization post WWI." – p. 32.

at the end of 1931.⁵⁶ The country first moved off the gold standard, prompting a substantial devaluation of the yen; eased monetary policy; and introduced massive fiscal stimulus. All of these measures were explicitly financed by the Bank of Japan. Consumer prices rebounded shortly thereafter and GDP per capita began recovering in 1932. This recovery can be partially attributed to the fact that the Japanese people viewed these policy changes as credible, much in the same way that the French did during their stabilization.⁵⁷

Takahashi, worried about the inflationary consequences of continuing to finance government expenditures in this way, pushed back against further monetization.⁵⁸ He was assassinated during a coup in 1935 due to his decision to cut government—specifically military—spending.⁵⁹ In the words of former Fed chairman and Great Depression scholar Ben Bernanke, Takahashi had “brilliantly rescued” Japan and allowed it to rebound rapidly from the Depression, even while many other nations were still suffering.⁶⁰

It is important to note that, in all of these examples, monetization was the primary, often the only, tool to finance profligate spending—for wars or otherwise. The governments in our modern examples—Turkey and Zimbabwe—followed similar paths. Turkey financed rapid economic expansion via monetization and saw large foreign capital inflows, leading to an increased debt burden, further monetization, and less confidence, which culminated in a currency crisis. The government of Zimbabwe faced a mixture of problems with key sectors (agriculture), spent frivolously, and chose to not rely on conventional methods of financing. While external factors, such as crushing war reparation burdens in the case of Weimar Germany or a turbulent period of interwar occupation, in the case of Poland, contributed to postwar economic hardship, the consistent lack of fiscal discipline and the partial or complete subordination of the central bank to the government across all the examples were the catalysts to extremely damaging economic crises.

In contrast, the French and Japanese experiences offer more hopeful lessons. They did not have to rely exclusively on the printing press to finance expansionary monetary and fiscal policy; they had stronger, more credible central banks; and they attempted to curtail excessive spending and depreciation after they were on the road to recovery. France repegged to gold at a lower level, and Takahashi’s bold decision to move off the gold

⁵⁶ Shibamoto, Masahiko, and Masato Shizume. “How did Takahashi Korekiyo Rescue Japan from the Great Depression?” *Kobe University Research Institute for Economics and Business Administration, Bank of Japan Institute for Monetary and Economic Studies*. August 1, 2011 – pp. 1-4.

⁵⁷ English, Erceg, Lopez-Salido (Forthcoming) – p. 29.

⁵⁸ See Nanto, Dick K., and Shinji Takagi. “Korekiyo Takahashi and Japan’s Recovery from the Great Depression.” *The American Economic Review*, Vol. 75, no. 2 (1985): 369-374. Accessed December 03, 2020, p. 373; Myong Soo Cha. “Did Takahashi Korekiyo Rescue Japan from the Great Depression?” *The Journal of Economic History* Vol. 63, no. 1 (2003): 127-144. Accessed December 03, 2020, p. 130.

⁵⁹ Kingston, Jeff. “1936 coup failed, but rebels killed Japan’s ‘Keynes.’” *The Japan Times*. February 20, 2016.

⁶⁰ Bernanke, Ben S. “Some Thoughts on Monetary Policy in Japan.” *Federal Reserve Board – Before the Japan Society of Monetary Economics*. May 31, 2003.

standard and promote expansionary monetary and fiscal policies allowed Japan to rebound from the initial shock of the Great Depression very strongly.

g. Is there a difference between war financing and pandemic financing?

Much of the criticism of monetization centers on the fear that, if it is extended, it will prevent the central bank from fulfilling its price-stability mandate—through excessive inflation, loss of independence, or some combination of the two. However, some forget that this type of monetary-fiscal cooperation is often seen in times of war.

Wars typically entail dramatic but temporary increases in government spending and borrowing to adequately address the conflict. In the case of World War II, for instance, the United States ran budget deficits in excess of 27 percent of GDP.⁶¹ The Federal Reserve relinquished some of its independence to cooperate with the U.S. government during both world wars, but it was able to return to its mandate and retain independence once they ended.⁶²

Something to consider is that, historically, pandemics and wars have impacted economies very differently. The real “natural” rate of interest in the decades following a major pandemic is 1.5 percentage points lower about 20 years later.⁶³ Pandemics, which often result in massive losses of life, and thus, labor, rebalance the relative returns to labor and capital. Wars, on the other hand, cause the destruction of both capital and labor. The added destruction of capital during a war causes the natural rate of interest to rise—the opposite effect as a pandemic—over the same amount of time.⁶⁴ While these differences exist, academics have suggested that the potential decline in real interest rates from COVID-19 may not be as severe as during wartime. The deaths from COVID-19 have made up a smaller proportion of the total population and those that have lost their lives are generally older, and thus not in the labor force. Also, aggressive fiscal policies, which lead to higher debt burdens, can put upward pressure on interest rates.⁶⁵ Monetization of these programs, however, would depress the real interest rate for a time. We do not yet know the full extent of the damage that will be caused by COVID-19, so the potential stagnation described above could still be a concern.

⁶¹ Fishback, Price. “World War II in America: Spending, deficits, multipliers, and sacrifice.” *VoxEU*. November 12, 2019.

⁶² Davies, Phil. “Federal Reserve’s Role during WWI.” *Federal Reserve History*. November 22, 2013; Richardson, “Federal Reserve’s Role during WWII.”

⁶³ Jordà, Òscar, Sanjay R. Singh, Alan M. Taylor. “Longer-run Economic Consequences of Pandemics.” *Federal Reserve Bank of San Francisco*. June 2020 – pp. 6 – 7.

⁶⁴ Jordà, Singh, Taylor, “Consequences of Pandemics” – pp. 9 – 10.

⁶⁵ Jordà, Òscar, Sanjay R. Singh, Alan M. Taylor. “The Long Economic Hangover of Pandemics.” *International Monetary Fund*. June 2020 – p. 15.

Wars often necessitate more monetary-fiscal cooperation than what convention suggests is wise, but it's helpful to have the central bank backing the government to ensure it has everything it needs to address the conflict. The sharp but temporary increase in deficit spending during a war mirrors what countries are doing currently to combat COVID-19. While monetization could produce some negative impacts, the similarities between the COVID-19 crisis and wartimes, from a public financing standpoint, are strikingly similar.

3. Were central banks monetizing government debt in 2020?

Based on our definition, it does not seem that any country conducted monetization in the initial response to COVID-19. Many central banks, including several in emerging markets, established or reinstated asset purchases and QE programs in 2020; and debt levels only rose, precipitously in some developing countries.⁶⁶ Based on our research, though, no central bank has explicitly labeled its programs as monetization. On the contrary, several have taken measures to make clear that monetization is not part of their strategy.

a. Philippines

The Banko Sentral Ng Pilipinas (BSP) in the Philippines purchased about \$6 billion in securities from the government in March, but with the understanding that the government would repurchase the securities after six months.⁶⁷ The government repaid the BSP at the end of September.⁶⁸ This explicit exit target, as well as the absence of a commitment to increase the price level, suggests that the central bank, while cooperating with the fiscal authority, did not intend to monetize this spending.

b. Indonesia

In Indonesia, government debt tripled in the fight against COVID-19. The government first issued a regulation that allowed Bank Indonesia (BI) to directly purchase newly issued government debt as a last resort.⁶⁹ It later proposed auctioning off about \$30 billion in "pandemic bonds," most of which BI would purchase.⁷⁰ But the government never issued the

⁶⁶ Sindreu, Jon. "Emerging Markets and Printing Money."

⁶⁷ Bangko Sentral ng Pilipinas. "Additional Php 300 billion support."

⁶⁸ "National Government Debt Recorded at P9,369 Billion as of end-September 2020." *Republic of the Philippines, Bureau of the Treasury*. October 29, 2020.

⁶⁹ Molina, Kristo, and Ibnu Fajar Ramadhan. "COVID-19 Response of the Indonesian Government on Funding and Financial Support Measures." *JDSupra*. May 16, 2020.

⁷⁰ Akhlaq, Adrian Wail, and Esther Samboh. "Explainer: Indonesia to finance coronavirus battle mostly through debt." *The Jakarta Post*. April 13, 2020.

pandemic bonds, saying it could obtain financing through traditional auctions.⁷¹ BI could still participate in other auctions if needed. Foreign demand for Indonesian debt fell, but domestic lenders and banks, supported by BI's liquidity measures, increased their holdings. The finance minister predicted on June 8 that the budget deficit would rise as high as 6.34 percent of GDP this year.⁷² According to its finance minister, the country's deficit through October was estimated at about 4.67 percent of GDP.⁷³ Later, the government and BI agreed to a proposal under which BI would purchase about \$40 billion in government bonds; the interest rate would be at market levels, rather than zero as originally proposed.⁷⁴ It appeared likely that BI would hold on to these bonds through 2021.⁷⁵ It appeared doubtful that BI would monetize this debt, though, as BI did not issue guidance signaling that it was committing to a higher price level following these purchases.

c. China

There was also some discussion about monetization in China.⁷⁶ The People's Bank of China (PBOC) is not permitted by law to directly buy sovereign debt or provide an overdraft facility to the government. However, the country still had significant monetary and fiscal space that it could use to enact other forms of relief without monetizing those costs.

d. India

India kept the door to monetization open, but it had not yet acted at the end of 2020.⁷⁷ Like many central banks, the Reserve Bank of India (RBI) actively purchased government bonds. However, it only did so in secondary markets and for limited amounts, as direct purchases were outlawed in 2003.⁷⁸ In the early days after India's independence, its government could achieve monetization automatically by issuing ad-hoc treasury bills "on-tap" directly to the RBI. A series of reforms in the 1980s and 1990s set some limits on this explicit form of fiscal

⁷¹ Akhlas, Adrian Wail. "Government scraps plan of issuing \$30 billion worth of 'pandemic bonds.'" *The Jakarta Post*. May 8, 2020.

⁷² Akhlas, Adrian Wail. "Indonesia's COVID-19 budget swells but still not enough, observers say." *The Jakarta Post*. June 8, 2020.

⁷³ "Economic Acceleration Against Contraction." *Ministry of Finance of the Republic of Indonesia*. November 23, 2020.

⁷⁴ See Moss, Daniel. "Can an Emerging Market Become a Policy Pioneer?" *Bloomberg*. July 10, 2020; Rahadiana, Rieka, and Grace Sihombing. "Why Bank Indonesia Will Fund \$40 Billion of Government's Budget." *Bloomberg*. June 30, 2020.

⁷⁵ Diela, Tabita, and Fransiska Nangoy. "Indonesia unveils \$40 billion bond scheme to fund recovery from pandemic." *Reuters*. July 6, 2020.

⁷⁶ "China Debates Monetisation of Deficit to Deal with COVID-19's Economic Impacts." *China Banking News*. May 15, 2020.

⁷⁷ Iyer, P Vaidyanathan, and Sunny Verma. "FM Nirmala Sitharaman interview: 'Thought about it (bigger cash transfers), but grant for how many, of how much?'" *The Indian Express*. May 20, 2020.

⁷⁸ Nag, Anirban. "RBI doubling its bond purchases suggests no plans to monetise debt." *ThePrint*. October 20, 2020; Act No. 39 of 2003. "The Fiscal Responsibility and Budget Management Act, 2003." *Government of India, Ministry of Finance, Department of Economic Affairs*. August 26, 2003.

dominance. The government adopted a market-based pricing system for auctions of sovereign debt, phased out the usage of ad-hoc treasury bills, and completely outlawed primary market purchases of debt by the RBI.⁷⁹ Some direct government finance occurred during the GFC through the use of Special Market Operations (SMOs), which allowed certain public companies (namely those in the oil sector) to sell bonds directly to the RBI to meet foreign exchange requirements. These were used sparingly, however.

A former RBI governor said in April 2020, that monetization was “inevitable” as the pandemic and calls for further stimulus continued.⁸⁰ The country’s healthcare infrastructure was strained. Many in the government were concerned about the potential for excessive inflation and the return of fiscal dominance.⁸¹ An escape clause in the law allowed the central bank to purchase government debt during times of crisis. This would allow the government to borrow from the RBI for temporary, cash-management needs and for the RBI to purchase government debt on primary markets during periods of significant economic stress, national emergency, or war.⁸²

e. The United Kingdom

The Bank of England (BoE) expanded the scope of its standing overdraft facility, called the Ways and Means facility, for COVID-19-related expenditures.⁸³ Historically, the facility has been used for cash-management purposes, similar to the wartime exception in the U.S. during the world wars. It was drawn on for nearly £20 billion in 2008 during the Global Financial Crisis.⁸⁴ The BoE justified this decision by stating that the facility was necessary to support the economy and meet its inflation target and that doing so did not subordinate the BoE to the government. A member of its monetary policy committee noted that this freedom of action is what separates the BoE’s use of the overdraft facility today from historical monetary disasters in the Weimar Republic or Zimbabwe.⁸⁵ Despite the government ramping up debt issuance to finance COVID-19 relief, the central bank did not use this facility in 2020.

⁷⁹ Reserve Bank of India, “Fiscal-Monetary Co-ordination.”

⁸⁰ Dugal, Ira. “Monetisation of Government Deficit May be Inevitable Amid Coronavirus Disruption: C Rangarajan.” *Bloomberg Quint*. April 1, 2020.

⁸¹ Subbarao, Duvvuri. “What is the problem that monetisation is trying to solve?” *The Indian Express*. May 28, 2020.

⁸² “Fiscal Responsibility and Budget Management Act” – pp. 5-6

⁸³ Bank of England. “Ways and Means extension.”

⁸⁴ “Ways and Means Advances.” *Bank of England*.

⁸⁵ Vlieghe, Gertjan. “Monetary policy and the Bank of England’s balance sheet.” *Bank of England*. April 23, 2020 – p. 14

The BoE's Asset Purchase Facility dramatically increased its purchases of government debt in 2020 as HM Treasury continues to issue more debt.⁸⁶ Despite this, BoE governor Andrew Bailey repeatedly stated that governments should not become reliant on central banks buying their debt through extensive asset-purchase programs. He said these programs have more in common with QE programs—they are crisis-focused and temporary by design. Additionally, he stated that the BoE would be looking to reduce its balance sheet *before* raising interest rates.⁸⁷ This is a departure from previous thinking. Bailey's predecessor, Mark Carney, argued for just the opposite after the GFC.⁸⁸ The BoE under Carney viewed interest rates as a more easily adjustable policy tool.⁸⁹ Bailey, however, said he did not wish huge central bank holdings of government bonds to become the norm.⁹⁰

f. Summary of COVID case studies

None of these recent examples meet our definition of monetization, although many observers have used the word to describe them.⁹¹ We have yet to find an example of any monetary authority that is explicitly engaging in monetization.⁹² Many central banks are purchasing government debt, including through QE programs, alongside large fiscal expansions. Those are aggressive, even unprecedented crisis-fighting measures. But they are not monetization. In none of these cases is the central bank using non-interest-bearing liabilities (cash), and, by extension, seigniorage, to finance the purchase of government debt. The Federal Reserve is the only central bank that has made any sort of commitment to be more accommodative of inflation and to moderately, but temporarily, exceed its inflation target.⁹³ However, the U.S. Congress did not pass any new fiscal relief in the months after the Fed made that announcement.

On the other hand, even though the Bank of England aggressively purchased newly issued government debt, it stated that it remained confident that it would be able to continue to fulfill its mandate while increasing its involvement in the government bond market.⁹⁴ The

⁸⁶ "Consolidated Market Notice: Asset Purchase Facility: Gilt Purchases – Market Notice 15 May 2020." *Bank of England*. May 15, 2020; "Asset Purchase Facility: Gilt Purchases – Market Notice 18 June 2020." *Bank of England*. June 18, 2020.

⁸⁷ Bailey, Andrew. "Central Bank Reserves Can't be Taken for Granted." *Bloomberg*. June 22, 2020.

⁸⁸ Inman, Phillip. "Mark Carney stands by forward guidance policy." *The Guardian*. December 17, 2013.

⁸⁹ Milliken, David. "Bank of England's Bailey says QE bond sales should precede rate rises." *Reuters*. June 22, 2020.

⁹⁰ Bailey, "Central Bank Reserves."

⁹¹ Moss, "Emerging Markets as Policy Pioneers?"

⁹² "Annual Economic Report – June 2020." *Bank for International Settlements (BIS)*. June 2020 – p. 63

⁹³ Powell, Jerome H. "New Economic Challenges and the Fed's Monetary Policy Review." *Federal Reserve Board of Governors*. August 27, 2020.

⁹⁴ Vlieghe, "Monetary Policy and the BoE's balance sheet."

BoE did not coordinate with the fiscal authorities by issuing forward guidance to raise its inflation targets, suggesting that it was not monetizing.

4. Do central banks have the scope to monetize their debt?

If central banks wanted to monetize their debt to support their COVID-19 responses, would they be able to?

Based on our analysis, a country's capacity for "safe" monetization depends on its level of economic development, the central bank's credibility, and the current economic environment. However, there is no clear tipping point where the inflationary and governance issues discussed above suddenly converge. Countries that have persistently low inflation, credible central banks, and strong economic fundamentals could potentially monetize some of their COVID-19 spending without excessive inflation or a loss of central bank independence. These countries generally have undershot their inflation targets and have central banks that are well equipped to handle changes in the price level. A country like Japan, which has struggled more than any other country to generate enough inflation to hit its target, might actually find it difficult to convince the public of its commitment to a higher price level.

Traditional debt financing, particularly for countries that already have high levels of debt, could still be an issue, with investors potentially questioning a sovereign's ability to fulfill its obligations and influencing expected future default probabilities. Deficits rose rapidly in 2020, raising questions about which nations would be able to reliably pay back what they owe. This has created a difficult situation for countries that did not have a large amount of fiscal space and were struggling to obtain external financing or issue debt. These countries do not have the same capacity for "conventional" (in other words, tax-based or debt-based) financing, and so it may have been tempting for them to monetize and do so for longer. However, their risks were also much greater. Poorly managed monetization could lead to a de-anchoring of inflation expectations, a loss of central bank credibility, and the inability for the central bank to be able to fight the excessive inflation. Central banks in these countries may also be more susceptible to governmental influence and fiscal dominance.

Tables 1 and 2 below break down these concerns. Table 1 charts the capacity that various types of countries had to engage in "conventional" (tax or debt-based) financing. Table 2 charts countries' varying capacity to conduct monetization. It is clear from this rough analysis that financing capacity was quite disparate across countries. Countries that could potentially benefit the most from monetization due to a lack of conventional financing capacity could also be most susceptible to its risks.

Table 1: Characteristics of conventional financing capacity

Level of Economic Development	Central Bank Credibility	Fiscal Capacity	Borrowing capacity	Reliance on external finance	Overall “conventional” financing capacity
High income	High	High	High	Generally low	High
Medium income / emerging market	Mixed	Mixed or low	Mixed, cyclical	Mixed or high	Mixed
Low income / developing economy	Generally low	Low	Low, cyclical	Generally High	Generally low

Source: Authors’ analysis.

Table 2: Characteristics of monetization capacity

Level of Economic Development	Risk of fiscal dominance	Risk of excessive inflation	Procyclicality of capital flows	Currency strength	Overall monetization capacity
High income	Low	Low	Low	High	High
Medium income / emerging market	Mixed	Mixed or low	Mixed or high	Mixed, cyclical	Mixed or low
Low income / developing economy	High	High	High	Generally low	Low

Source: Authors’ analysis.

Despite these risks, some have argued that developing countries still may be able to monetize a portion of their debts, provided they have a flexible exchange-rate regime and are issuing debt mostly in their local currency.⁹⁵ Foreign ownership of local-currency government bonds in many countries has steadily increased. Investors usually have U.S. dollar-based liabilities, which increases the risk of a fire sale of local government debt. However, their central banks are positioned to function as purchasers of last resort if this occurs.

Operationalizing monetization requires some additional thought. Using reserve creation for monetization assumes a world in which there is no interest paid on reserves, which is not the world we live in. The aid extended by a fiscal program will inevitably end up in the banking system, which will increase the amount of bank reserves at the central bank. In times of stress, banks are reluctant to lend, so they are likely to keep these excess reserves at the central bank and earn interest on them.⁹⁶ The central bank, by paying for the program initially using reserves, has simply substituted interest payments that the government would pay on debt for interest paid on reserves.

Central banks could opt to pay very low, or even zero interest on the bank reserves created in this way, which would discourage banks from parking their cash, encourage lending, and ensure that the exercise is costless to both the central bank and the government.⁹⁷ Another method involves the central bank levying an adjustable charge on banks—one on total liabilities, for instance—that would be sufficient to offset the interest paid on reserves.⁹⁸ This, however, amounts to a tax on the banking system and has its own issues. Concerns about fiscal dominance and central bank independence could potentially be alleviated if the government had a permanent account at the central bank that would be filled only when the central bank deemed monetary financing appropriate.⁹⁹

As for the problem of interest on reserves, a longer-run solution for central banks would be for them to gradually reduce their reserves and return to an environment where they no longer pay interest on them. However, this would be exceptionally time-consuming and require major central banks to coordinate amongst one another about how to unwind their balance sheets. Given these limitations, it would be much more effective to finance a fiscal program with reserve creation initially and seigniorage in the long run, rather than reserve creation exclusively.

⁹⁵ Benigno, Gianluca, Jon Hartley, Alicia Garcia-Herrero, Alessandro Rebucci, Elina Ribakova. "Credible emerging market central banks could embrace quantitative easing to fight COVID-19." *VoxEU*. June 29, 2020.

⁹⁶ Dugal. "Monetisation Neither Game Changer nor Catastrophe."

⁹⁷ Ryan, Ellen, and Karl Whelan. "Quantitative easing and 'hot potato' effect: Evidence from euro area banks." *VoxEU*. April 5, 2019.

⁹⁸ Bernanke, "Helicopter Money."

⁹⁹ Bernanke, "Helicopter Money."

There are reasons to be cautious, but as the costs of COVID-19 continue to mount, so too have the sizes of government deficits and, with them, the calls for monetization. It is a powerful emergency tool, capable of providing substantial stimulus and a dramatic reduction in real interest rates if it is communicated successfully and seen as credible.¹⁰⁰ However, it is unclear how much monetization developing countries could safely conduct, if any.

a. What are some alternatives to monetization during COVID-19?

For developing countries for whom monetization appears difficult, debt relief may be the only alternative in the COVID-19 crisis. On April 15, 2020, the G20 announced the Debt Service Suspension Initiative (DSSI).¹⁰¹ It provided relief from sovereign debt payments to G20 members for International Development Association (IDA) countries and least developed countries (LDCs). A total of 77 countries are eligible for the DSSI, which suspended debt service payments through the end of 2020 for participating countries. Approximately \$11 billion could be freed up this way.¹⁰²

There are some challenges, however. Debt relief may be too small or too narrow in scope to effectively reduce massive debt stocks. Many of the DSSI-eligible countries need relief from private-sector creditors coordinating with sovereign ones for debt relief, as they owe a collective \$13 billion to them through the end of the year. But negotiations with the private sector were done on a case-by-case basis, and there were likely to be some holdouts, which could mean that countries would have to pay those creditors in full.¹⁰³ There are also a number of middle-income countries that have higher debt burdens and were expected to run much higher deficits.¹⁰⁴ These countries also tend to rely more on private creditors, which can exacerbate holdout issues.¹⁰⁵ In October 2020 the G20 extended DSSI relief until June 31, 2021, and agreed to meet again before the program's expiration to discuss a second extension.¹⁰⁶ However, the DSSI has had mixed results. As of November, only 46 of the 77 eligible countries applied for DSSI relief, and only 35 have had relief finalized. Additionally, private creditors, whose participation is voluntary, had not participated in any significant way, meaning that any money obtained via DSSI relief provided by governments

¹⁰⁰ English, Erceg, Lopez-Salido (2017) – pp. 30-31

¹⁰¹ "Virtual meeting of the G20 finance ministers and central bank governors." *G20 Information Center*. April 15, 2020.

¹⁰² Della Guardia, Paul, Jadranka Poljak, Katherine Standbridge, and Emre Tiftik. "IIF Weekly Insight – G20 DSSI: What's owed to Private Creditors?" *Institute of International Finance*. May 7, 2020.

¹⁰³ Smith, Colby, and Robin Wigglesworth. "Why the coming emerging markets debt crisis will be messy." *The Financial Times*. May 12, 2020.

¹⁰⁴ Fortun, Jonathan, and Sergi Lanau. "Economic Views – EM Fiscal Deficits in the COVID-19 Shock." *Institute of International Finance*. May 5, 2020.

¹⁰⁵ Gelpern, Anna, Sean Hagan, and Adnan Mazarei. "Debt standstills can help vulnerable governments."

¹⁰⁶ "Communiqué: G20 Finance Ministers and Central Bank Governors Meeting." G20 Research Group. October 14, 2020.

immediately would go to private creditors.¹⁰⁷ The Yale Program on Financial Stability has additional materials about the impact of the DSSI.¹⁰⁸

Another alternative is financial repression. This typically takes the form of policies that allow the government to “tax” savers, such as through interest-rate caps, capital controls, and other policies. Financial repression can help a country reduce nominal interest rates, alleviating the debt service burden and ultimately reducing the debt-to-GDP ratio.¹⁰⁹ The U.S. used financial repression extensively after World War II, and real interest rates during this time were negative about half the time.¹¹⁰ Ultimately, financial repression “played an instrumental role in reducing or liquidating the massive stocks of debt accumulated during World War II.”¹¹¹

As with debt relief, financial repression is not without its challenges. Enforcing low interest rates can lead to inefficient allocation of savings, and successful implementation may require a level of coordination between fiscal and monetary authorities that may call into question the independence of the central bank.

Another option is a combination of tax increases and spending cuts, or austerity. These appear to be unlikely options, as they are politically unpopular and can harm economic recovery. Spain’s efforts at fighting the virus were initially hamstrung by austerity measures they adopted in the wake of the GFC, which led to a number of shortages of equipment, doctors, and hospital beds.¹¹² The government of India circulated a memorandum that stated that it would suspend the commencement of all new publicly funded programs aside from those in their approximately \$260 billion pandemic response package.¹¹³ Ecuador announced austerity measures in May, which will result in the closure or merging of several public companies and potentially thousands of layoffs.¹¹⁴ The decision sparked massive protests across the country, similar to the reaction that occurred after the government negotiated an austerity-laden \$4.2 billion agreement with the IMF in March 2019 for

¹⁰⁷ Fresnillo, Lolanda. “The G20 Debt Service Suspension Initiative: Draining out the Titanic with a bucket?” European Network on Debt and Development (Eurodad). October 2020.

¹⁰⁸ Nye, Alexander, and June Rhee. “The Limits of the G20’s Debt Service Suspension Initiative.” Yale Program on Financial Stability. May 18, 2020.

¹⁰⁹ Kirkegaard, Jacob, and Carmen Reinhart. “Financial Repression: Then and now.” *VoxEU*. March 26, 2012.

¹¹⁰ Reinhart, Carmen M., and M. Belen Sbrancia. “The Liquidation of Government Debt.” *National Bureau of Economic Research*. March 2011.

¹¹¹ Reinhart and Sbrancia, “Liquidation of Government Debt.” – pp. 5.

¹¹² Hedgecoe, Guy. “In Spain, austerity legacy cripples coronavirus fight.” *Politico*. March 28, 2020.

¹¹³ Ohri, Nikunj. “India Opts for Austerity Measures Amid Covid-19 Pandemic.” *Bloomberg Quint*. June 5, 2020; “Office Memorandum – Appraisal and Approval of all Public Funded Schemes/Sub-Schemes.” *Government of India – Ministry of Finance*. June 4, 2020; “India’s Rs 20 lakh crore Covid relief package one among the largest in the world.” *The Economic Times of India*. May 15, 2020.

¹¹⁴ Gutierrez, Reynel. “Ecuador: Lenín Moreno announces new austerity measures.” *Tiempo Digital*. May 19, 2020.

economic support.¹¹⁵ The IMF and Ecuadorian government cancelled this agreement in May and agreed to a different aid package worth about \$6.5 billion in August 2020.¹¹⁶ Additionally, Ecuador was able to restructure about \$17.4 billion of external debt as a result of this IMF agreement being reached.¹¹⁷ However, these agreements are all contingent on Ecuador being able to implement austerity (called “fiscal consolidation”) measures amounting to about 5.5 percent of GDP over the next five years.¹¹⁸

5. Conclusions

Monetization, that is, financing government expenditures through issuance of non-interest-bearing central bank liabilities, poses real risks—potentially excessive inflation and encroachment on central-bank independence. Some paint monetization as a relic of a bygone era. The onset of the COVID-19 crisis, however, forced governments to spend heavily to combat the considerable economic and public-health impacts. As deficits climbed and external investors remained cautious about where to place their capital, monetization re-entered the conversation as a potential avenue to avoid massive debt burdens that some nations, particularly those in the developing world, may face.

However, much of what many are calling monetization today is not really monetization. In particular, many central banks are conducting extensive purchases of government bonds—but they financed these purchases with newly created interest-bearing reserves rather than through a temporary commitment to increase the price level. This means that they were not generating seigniorage via increased inflation and weren’t really monetizing, even though they could hold the bonds until maturity and roll them over indefinitely. The characteristics of debt securities purchased via quantitative-easing programs can make it difficult to tell if the purchases are permanent; it could be up to 30 years before some of the debt matures and needs to either be retired or rolled over. To our knowledge, no central bank during the COVID-19 crisis took an action that met our definition or explicitly stated that it was conducting monetization.

The extent to which a country is able to conduct either explicit or even “implicit” monetization depends on its level of economic development, the credibility and independence of its central bank, and the general economic environment. This makes

¹¹⁵ “IMF Executive Board Approves US\$4.2 Billion Extended Fund Facility for Ecuador.” *International Monetary Fund*. March 11, 2019.

¹¹⁶ “IMF and Ecuadorian Authorities Reach Staff-Level Agreement on a New Extended Fund Facility.” *International Monetary Fund*. August 28, 2020.

¹¹⁷ Kueffner, Stephan. “Ecuador Reports 98.5% of Bondholders Exchanged Bonds.” *Bloomberg Quint*. September 1, 2020.

¹¹⁸ “Ecuador: Request for an Extended Arrangement Under the Extended Fund Facility – Press Release; Staff Report; Staff Supplement; and Statement by the Executive Director for Ecuador.” *International Monetary Fund*. October 2020.

monetization more attractive for countries that may not be able to obtain sufficient financing through debt issuance, taxation, or external finance (such as through the IMF).

However, these countries are often much more vulnerable to the inflationary and governance risks associated with the practice. A counterargument is that not fighting the crisis forcefully enough could have medium or long-run economic effects that are worse than the risk of some inflation. Central banks are well-equipped to deal with inflation, but the historical examples of excessive inflation, spurred by a loss of central-bank credibility and a de-anchoring of inflation expectations, serve as a cautionary tale.

Monetization has primarily been used in the past to help finance wartime expenditures. The Fed financed deficits as high as 27% of GDP during World War II. Central banks may sacrifice some of their independence and ability to manage inflation in favor of fiscal objectives in such situations, albeit for a very limited period to avert a crisis. From a public financing standpoint, a substantial, but temporary, economic shock, whether through war or disease, could be a dangerous enough emergency to demand similarly substantial and temporary cooperation between monetary and fiscal authorities. As World Bank Chief Economist Carmen Reinhart said recently: “This is a war. In a war, you worry about winning the war, and then you worry about paying for it.”¹¹⁹

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¹¹⁹ Wheatley, Jonathan. “Borrow to fight economic impact of pandemic, says World Bank’s chief economist.” *Financial Times*. October 8, 2020.

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