“A Political Economy of Fiscal Space: Political Structures, Bond Markets, and Monetary Accommodation of Government Spending Potential at Municipal, National, and International Levels”

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Abstract:

In times of economic crisis, academics, policy-makers, and pundits often debate how much government debt is too much. This paper argues that discourses about fiscal space should consider several political economic factors beyond the ratio of fiscal deficits and debt to GDP when determining the sustainability of any economy's fiscal deficit. These include political constraints on both government spending and taxation, financial and monetary dynamics in bond markets for sovereign debt, and the relative hierarchy of governments attempting to issue sovereign debt. While the federal governments of the US and Germany may easily issue and sell debt in private markets, smaller economies are more vulnerable to demand fluctuations, and will benefit from explicit commitments by monetary authorities to resume their historic roles as governments' banks, especially during crises. By highlighting present political constraints, monetary structures, and market factors that may inhibit governments' successful placement of bonds, it deepens present debate about the potential feasibility of functional finance to facilitate fiscal activity, even in unprecedented times.

Key Words: Fiscal Space, Monetary Accommodation, Liquidity, Fiscal Policy

Introduction

A perennial question that follows increased government spending during recessions is how much debt is too much. (Tankersley, 2020; Alderman, 2021) The notion of fiscal space refers to the capacity a government has to deficit spend, given pre-existing debt and GDP levels. After the Global Financial Crisis (GFC) and the Great Recession, many analyses discussed whether countries that had pursued counter-cyclical policy were better served than countries that had increased their fiscal expenditure in the period before the 2008 crisis. (Akerlof, Blanchard, Romer, and Stiglitz, 2014) US and European responses to the Great Recession promoted austerity in unprecedented fashion, with lasting socio-economic and political consequences. (Crotty, 2012) In the Eurozone, peripheral economies that accepted conditional austerity for bailouts endured double-digit unemployment rates, inhibited growth, and mounting social costs. In the US, states and municipalities incapable of borrowing endured similar economic hardship and social welfare costs. (Blyth, 2013)

At the time of writing, these issues have come back into focus as governments have responded to the Coronavirus Crisis. Prominent economists and policy-makers in Europe and the US again debate how much governments should spend, if deficit spending may cause inflation, and whether observers should worry about these phenomena. (Joyce and Prabowo, 2020; Reinhart and Rogoff, 2020; Odendahl and Springford, 2020; Sawyer, 2021) Meanwhile, moratoria on emerging market economies' (EMEs) sovereign debt have ended, increasing developing economies' vulnerability to spiking costs on debt accrued over the pandemic. (Munevar, 2021; Wheatley, 2022; Diallo, 2022) Given the importance of government expenditure as a share of GDP, a source of wages, and a provider of public goods that can improve supply conditions, governments' relative abilities to spend affects economic development overall.

This paper argues that discussions of fiscal space should address structural factors that may constrain economies' ability to fund sovereign debt in addition to deficit and taxation levels.

Sovereign debt is a significant component of exchange traded funds and general collateral for repurchase agreements that feature prominently in bank funding operations. (Gabor, 2020; Sissoko, 2019) The volatility of these forms of funding and assets can negatively affect bond issuers' funding costs. (Gao and Qi, 2019) Legal codes may constrain governments abilities both to run deficits and to increase taxes. (Poterba, 1995) During crises, these laws constrict fiscal space in ways that hinder economic recovery. (Peck, 2014)

The relative propensity with which governments directly support financial systems in times of crisis can potentially limit other forms of government spending, particularly when governments face political constraints on deficit spending. In EMEs, capital account openness enables rapid capital inflows followed by rapid outflows, creating economic instability that may further deter private creditors from holding sovereign debt. These developments diminish governments' abilities to fund sustained development, especially if they accept relief from organizations mandating conditional austerity. Governments' abilities to facilitate development underserved by private creditors suffers, regardless of the societal benefit from intended expenditure. Instead, these governments may internalize market pressures by saving for future recessions, regardless of looming costs of not intervening. (Kose, Ohnsorge, and Sugawara, 2021)

Monetary authorities or financial institutions that can act as a lender or dealer of last resort by purchasing sovereign debt or municipal bonds can potentially relieve governments' funding stresses. (Mehrling, Neilson, Pozsar, and Sweeney, 2013) Monetary backstops for sovereign debt can stabilize bond yields if private creditors threaten to sell off government bonds, as the Federal Reserve, the ECB, the Reserve Bank of Australia, and other central banks have shown in the most recent crises. (Tooze, 2021) Structurally important central banks willing to extend liquidity services

abroad likewise accommodate government spending during crises. (Pape, 2020) However, not all governments have access to monetary authorities willing or able to extend these services, which may inhibit spending or raise funding costs for smaller countries, municipalities, and EMEs.

(Sahasrabuddhe, 2019; Carre and Le Maux, 2020, Kose, Ohnsorge, and Sugawara, 2021) Globally integrated sovereign debt markets can complicate functional finance in practice. (Lerner, 1948; McCombie and Thirlwall, 2004) This paper elaborates on these constraints, and considers how governments and monetary authorities can best facilitate fiscal expenditure, especially during crises.

The second section of this paper defines the concept of fiscal space, and establishes the importance of fiscal expenditure and deficits. The third section outlines political and economic factors that may constrain fiscal space. The fourth section discusses recent examples of liquidity provision, and presents preliminary data on monetary accommodation before and after the 2008 Global Financial Crisis, as well as the 2020 Coronavirus crisis. It shows the accommodative effects of monetary measures like access to dollar swap lines, security purchasing programs and lending facilities for developed economies, and the challenges for EMEs that lack these services. The final section concludes, and suggests future policies.

Fiscal Space, Fiscal Policy, and the Virtues of Government Expenditure

Fiscal space, fiscal sustainability, and fiscal capacity refer to governments' abilities to maintain deficits without increasing borrowing costs. (Ostry et al, 2010) Keynes explored the negative longer-consequences of punitive debt conditions at length in *The Economic Consequences of the Peace*; he also argued that government debt should not grow too relative to national income. (Mehrling, 2020; Aspromourgos, 2018) Organizations like the IMF and World Bank often invoke fiscal sustainability when arguing against fiscal policy and deficits as economic development strategies. (Ostry et al, 2010)

Limiting fiscal space directly by regulations, or indirectly through rising funding costs may diminish governments' significant contributions to GDP, wages, and physical capital produced at national levels. Outside of recessions, government expenditure has accounted for 20-40% of GDP in developing economies, and 40 to 50% of GDP in developed economies between 1990 and 2020. (OECD Statistics, 2021) During recessions, governments' contributions to aggregate expenditure and importance as a source of wages and transfers increases. Governments routinely provide more services and receive less tax revenue during recessions, these dynamics reverse during recoveries. Governments also provide liquidity support to banks during financial crises. Between 1995 and 2020, ratios of government revenue to expenditure have shrunk during crises and recessions, only to increase during recoveries. (OECD Statistics, 2021) Government debt to GDP ratios tend to be lower in EMEs than in developed economies. While government debt has been above 100% of GDP since 2012 in the Eurozone, and between 80 and 85% of GDP for non-Eurozone developed economies between 2012 and 2019, government debt has held between 50 and 60% of GDP for Central and Eastern European economies, 40 and 45% of GDP for East Asian economies, and 20-45% of GDP for Latin American economies in that period. (OECD Statistics, 2021)

Governments issuing debt in sovereign bond markets face two sources of risk for their ability to fund fiscal activity. Changes in private financial institutions' relative demand for these assets may drive their prices down or up, with reverse consequences for governments' funding costs, and governments may also be vulnerable to monetary authorities' relative willingness to accept those bonds as collateral for standard liquidity provision. (Chakravarty and Sarkar, 1999; Downing and Zhang, 2004; Ban and Gabor, 2015) These dynamics affect governments' abilities to respond to crises. (Bayoumi and Eichengreen, 1995) If a government lacks a ready market for its debt, its ability to fund deficits may change dramatically as cyclical deficits increase during recessions. Larger economies that can place sovereign debt easily in private credit markets face fewer funding

constraints than smaller economies that are more vulnerable to economic shocks. (McCombie and Thirlwall, 2004) If creditors lose confidence in an EME's economic fundamentals, that government may face spiraling costs of funding fiscal expenditure. (McCombie, 2011) These dynamics may increase the likelihood of bond vigilantism, under which private creditors respond to governments' actions by selling sovereign bonds, which further increases those governments' funding costs. (Rommerskirchen, 2020)

Monetary authorities have varying abilities to accommodate fiscal expenditure. Monetary authorities' relative willingness to backstop domestic financial markets can limit the necessary expenditure governments entail after financial crises. If monetary authorities acquire sovereign bonds, they have the potential to backstop sovereign bond markets and prevent private creditors' panics from impeding governments' spending ability. In federalist systems like the US, the federal government may face different pressures than municipal governments at the state and city level face. In the Eurozone, core economies face less risk of private creditors selling off government debt with adverse funding consequences than peripheral economies do. Private credit markets for EMEs' sovereign debt are more volatile than markets for core economies' debt, and smaller economies and they are likely to be excluded from international monetary accommodations like currency swap lines with the Federal Reserve. (Murau, Pape, and Pforr, 2021)

Given the importance of government expenditure in GDP, as well as the increasing importance of governments in the indirect funding of financial and non-financial firms' operations, it is worthwhile to consider the feasibility for governments to fund expenditure by issuing debt. The next section describes political, monetary, and financial market constraints that have hindered different levels of government's ability to spend, and the negative consequences of those deterrents.

Political and Economic Constraints on Fiscal Space in the US, Europe, and Emerging Markets

This section of the paper illustrates political and liquidity constraints on fiscal space in the US and beyond, at local and national levels. Relative economic and political power help determine the facility with which governments may spend in excess of tax revenue.

Fiscal Rules and Fiscal Space

In the US, fiscal policy occurs at federal, state, and city levels. Assuming congressional approval, the federal government can most easily deficit spend compared to lower government levels. States have gradually assumed more responsibility for providing services that the federal government previously provided, which heightens the importance of maintaining municipal spending power during recessions. (Peck, 2014) The primary constraints on municipal fiscal space in the US are political regulations and funding pressures in municipal bond markets.

All US states except Vermont maintain balanced budgets that limit those governments' ability to spend more than tax revenue. (Poterba, 1995) State governments instituted these laws in the mid-19th century after a series of funding crises increased municipal borrowing costs and the federal government stopped bailing out state governments at risk of default. (Henning and Kessler, 2012) Balanced budget requirements apply to different degrees of expenditure, and vary in stringency. States with balanced budget requirements generally exempt certain components of spending, but a selection of states legally requires that new spending and tax initiatives be approved by voters. Balanced budget laws are correlated with lower fiscal deficits; stricter laws increase that effect. (Poterba, 1995; Bayoumi and Eichengreen, 1995) States that must submit new initiatives for voters' approval tend to spend less than those that do not. However, states with regulations that increase the difficulty of raising revenue are likely to incur larger deficits during recessions, as they start with a smaller fiscal buffer in non-recessionary times. (Poterba, 1995)

Whether lower deficits are desirable depends on what states want to prioritize. Lower state-level deficits are correlated with lower municipal bond rates in the US. (Poterba and Rueben, 1999)

This may help governments waiting to spend in times of trouble, but municipal bond rates tend to increase during recessions, when governments are more likely to borrow and cyclical deficits rise. (Krugman, 2008; Baldacci and Kumar, 2010; Pollin, 2012) It also assumes that government expenditure's primary role is to limit damage from recessions, rather than to promote development and social goods. (Fazzari, 1994; Marglin, 2021) Maintaining low deficits during recessions can inhibit recoveries, especially if households and firms are saving more as precautionary measures. (Fazzari, 1994; Bayoumi and Eichengreen, 1995; Marglin, 2021) Bond spreads between municipal bonds and US treasuries are countercyclical: they grow most during recessions. (Bordo and Duca, 2021) Though municipalities are unlikely to default, Bordo and Duca (2021) attribute the apparent skittishness of private bond holders to risk aversion.

Europe's Stability and Growth Pact (SGP), modeled on state-level balanced budget policies in the US, mandates that Eurozone members not allow government deficits to GDP ratios to rise above 3%, or government debt to GDP ratios to rise above 60%. (Henning and Kessler, 2012) The SGP requires the European Council to intervene when states breach acceptable deficit or debt to GDP ratios and to penalize economies that do not reduce deficits through the excessive deficit procedure (EDP). (Heipertz and Verdun, 2004) However, these rules have been applied inconsistently before and after 2008. The European Council's attempt to initiate EDP against Portugal, France, and Germany in 2002, was nullified when the Council of the European Union for Economic and Financial Affairs (EcoFin) suspended the process for France and Germany, in 2003. Though the European Court of Justice later confirmed the EcoFin's ability to ignore European Council recommendations to initiate EDP against member states in 2004. (Heipertz and Verdun, 2004) Multiple publications in 2004 criticized the ineffective legislative design of the SGP, and argued that the EU's unwillingness to enforce the SGP would encourage moral hazard among members that would not expect punishment for exceeding the mandated deficit and debt limits. (De

Haan, Berger, and Jansen, 2004; Collignon, 2004) Annett (2006) argued that the SGP was more likely to affect smaller and newer members of the Eurozone than larger and more established members that were more insulated from sovereign bond market volatility.

These tensions reemerged in 2008 after the GFC. Though most European governments bailed out domestic financial systems in addition to the other fiscal burdens of responding to a growing and global recession, governments faced varying fiscal burdens when rescuing domestic financial sectors. (Frangakis, 2015; Tooze, 2018) Banks in core economies of the Eurozone that operated branches in the US were likely to receive a combination of direct and indirect bailouts from both the Federal Reserve in addition to their domestic governments' assistance. By contrast, peripheral members of the EMU bore disproportionate financial burdens for relieving their banks' financial crises that resulted from the drying up of global credit markets that had increasingly come to serve domestic banking needs. (Ban and Gabor, 2016; Tooze, 2018) Leadership of the Eurozone embraced austerity and enforcement of the SGP for member states incurring funding crises as the GFC gradually transformed into the Eurozone Crisis. Conditional austerity measures linked with liquidity for peripheral governments increased the burdens those governments faced after the GFC, and prolonged economic recessions in economies worst affected by the Eurozone Crisis. (Tooze, 2018; Blyth, 2018)

EMEs have long faced different rules than industrialized economies regarding the acceptability of fiscal deficits and debt. Fiscal discipline was a central component of the so-called 'Washington Consensus.'¹ Four of the ten policy prescriptions in the Consensus related to states' involvement in their national economies: that budget deficits should be small, that public

¹ The Washington Consensus was a series of policies that John Williamson described in a presentation in 1989 meant to describe then prevailing goals of Latin American policy makers, as well as international policy analysts at Washington, DC based institutions like the IMF, World Bank, and US Treasury. (Williamson, 2004)

expenditure should be directed to maximize returns, that tax reforms should increase tax bases while cutting marginal rates, and that governments should privatize state-owned enterprises. At the same time, these policies included many measures now identified as sources of economic instability that have increased the potential for new sorts of crises since their implementation, including financial liberalization, release of capital controls, the gradual elimination of trade barriers and restrictions on competition. (Williamson, 2004)

Many of these policies were enshrined in contractual terms for economic relief from agencies like the IMF or the World Bank, or for membership in organizations like the OECD. (Abdelal, 2007) Abdelal identifies several middle-income countries that liberalized capital markets in order to qualify for OECD membership, such as South Korea, the Czech Republic, and Mexico, only to experience financial crises several years later. Shock treatment, or the conditional implementation of austerity as a prerequisite for aid from organizations like the IMF and World Bank, occurred in myriad nations after the onset of the East Asian, Latin American, and Russian economic crises in the late 1990s and early 2000s. (Stiglitz, 2002) Countries that have experienced conditional austerity in the past may proactively restrict government expenditure in order to minimize the potential for balance of payment crises or the need to access aid with punitive measures in the future.

Bond Markets, Monetary Accommodation, and Fiscal Space

Two structural financial market changes from the 1980s onward have increased bond market volatility and complicated sovereign bond funding. These include the global rise of shadow banking and repo funding that rely on sovereign debt as collateral, as well as the increased importance of exchange traded funds that prioritize municipal debt in the US. (Sissoko, 2019; Ben-David, Franzoni, and Moussawi, 2014) These mechanisms increase volatility in international capital markets for EMEs' and small economies' sovereign debt in ways that may increase the costs of borrowing relative to governments in economies with exorbitant privilege. (Gourinchas and Rey, 2015; Ban and

Gabor, 2016) This development may increase particular economies' vulnerability to balance of payment crises, under which deficit expenditure by one or more sectors of an economy may generate funding challenges for others. (McCombie and Thirlwall, 2004)

Banks increasingly rely on non-bank financial intermediaries for funding through repurchase agreements. (Adrian and Shin, 2009) Under repurchase agreements, henceforth repos, borrowers sell a share of their assets, collateral, to counterparties, for a predetermined percentage of the asset's value. (Mehrling, Neilson, Pozsar, and Sweeney, 2013) Borrowers then repurchase that collateral as soon as 12 to 24 hours later. If counterparties worry about borrowers' solvency or the value of collateral, they may require borrowers to post more collateral, or they might increase the hair-cut, or difference between the short-term loan and the value of the collateral, which would require more payment from the borrower. (Gorton and Metrick, 2012) Though repo funding may be less expensive than traditional lending, it often shortens the timeframe of liquidity provision, and introduces new sources of risk, if the perceived risk of collateral or borrowers' own creditworthiness changes. (Mehrling, Neilson, Pozsar, Sweeney, 2013; Sissoko, 2019)

Sovereign debt constitutes a substantial share of collateral in repurchase agreements, particularly in the Eurozone. (Gabor, 2016) Before 2008, sovereign debt issued by core and peripheral members of the Eurozone were freely included in general collateral, partly because of accounting rules that appeared to exempt sovereign bonds from haircuts. (Ban and Gabor, 2016) After 2009, the ECB repeatedly marked sovereign bonds to market and implemented margin calls and haircuts on sovereign debt issued by peripheral governments in crisis for NCBs engaged in monetary policy. (Ban and Gabor, 2010) These actions increased private creditors' propensity to sell peripheral economies' sovereign debt and to reject those bonds from general collateral. (Ban and Gabor, 2016; Tooze, 2018) This rejection of sovereign debt issued by a growing number of peripheral EMU governments further exacerbated the sell-off of peripheral governments' bonds,

triggering the Eurozone's Doom Loop. (Sissoko, 2019; Gabor, 2021) By contrast, private creditors' demand for sovereign bonds issued by core members of the Eurozone, particularly German government bonds, increased, despite the German government's limited willingness to deficit spend. (Gourinchas and Rey 2015) These changes increased instability in Eurozone sovereign debt markets, and unsettled governments that might otherwise have issued debt more freely. (Gabor, 2021)

For EMEs, rapid inflows of capital may destabilize financial systems and economic performance as a whole, especially if they are followed by capital flight. (Ghosh, Qureshi, Kim, and Zalduendo, 2014; Powell and Tavella, 2015; Ndikumana, 2016) Given the potential for shadow banking and repo agreements to shorten the time horizon of credit provision, and to increase borrowers' vulnerability to private creditors' changing assessments of risk and value of the assets used as collateral, shadow banking has the potential to increase EMEs' vulnerability to funding panics. (Adrian and Shin, 2010; Gabor, 2018; Sissoko, 2019) Studies of shadow banking in EMEs highlight several themes. First, most financial intermediation that occurs in developing economies is still concentrated in commercial banks; middle-income economies like China, India, and Central and Eastern European economies have gradually increased their reliance on non-bank financial intermediation that could be called shadow banking. (Ghosh, Gonzalez del Mazo, and Ötcher-Robe, 2012; Gabor, 2018) Ehlers, Kong, and Zhu (2018) note that the Chinese bond market relies significantly on shadow banking, and that commercial banks frequently rely on repo funding; they also note that shadow banking has been particularly important for private firms in China that may be underserved by state-owned commercial banks. Non-bank financial intermediaries' claims on institutions have doubled or more for banks in middle-income economies, while banks in those economies have increased claims on non-bank financial intermediaries at an equivalent pace. (Aldasoro, Huang, and Kemp, 2020) Peripheral European economies' experiences during the doom

loop may foretell future dynamics for EMEs, if their sovereign debt becomes a major component of general collateral in these repos.

Monetary Accommodation of Fiscal Space

In select cases after the GFC, and increasingly after the onset of the Coronavirus Crisis, major central banks have demonstrated commitments to accommodate financial activity and sovereign debt issuance through the international extension of credit facilities and swap lines, as well as by directly backstopping sovereign debt markets. These actions have demonstrated both the potential for monetary authorities to facilitate fiscal expenditure, as well as the political limitation in both how those powers are extended and to whom. This section discusses recent developments in liquidity provision following the GFC as well as the onset of the pandemic in 2020.

In 2008, the Federal Reserve extended credit lines to banks and non-bank financial intermediaries, authorized and initiated large-scale purchases of toxic financial assets from banks experiencing liquidity crises, and created several credit facilities for financial intermediaries in the US and abroad. (Panetta et al, 2009) The ECB lengthened the term for refinancing repo operations to provide national central banks (NCBs) across the Eurozone more time to maneuver, and eventually introduced new liquidity measures including an array of securities purchasing programs for corporate debt and sovereign debt, while NCBs likewise initiated relief measures in tandem with governments across the Eurozone. (Panetta et al, 2009) These measures were intended to encourage banks to lend more to firms and households, to cease precautionary reserve hoarding, and to relieve financial pressure throughout the system. (Tooze, 2018) The Federal Reserve also engaged in international lender of last resort activity by creating dollar swap lines, agreements to credit the accounts of the European Central Bank, the Bank of Japan, the Bank of Canada, the Bank of England, and the Swiss National Bank with dollars in exchange for domestic currency denominated assets as collateral. (Allen and Moessner, 2010; Hong and Werner, 2020) Though the European

Central Bank declined to backstop markets for European sovereign bonds early in the GFC, it later committed to purchasing sovereign debt issued by peripheral Eurozone members under the auspices of the Eurosystem's Securities Market Programme (SMP). These purchases stabilized bond spreads for peripheral members, though they were required to commit to austerity measures in order to qualify. (Tooze, 2018)

Since 2020, there has been more expansive deployment of accommodative monetary policy both within monetary systems and across borders. The ECB's commitment to purchase European sovereign debt after March 2020 using the Pandemic Emergency Purchasing Programme (PEPP) has had similar effects. Interest rates on sovereign debt issued by peripheral Eurozone members including Greece have hovered below zero between April 2020 and October 2021, though these spreads have grown since December 2021. (Arnold and Stubbington, 2020; Rebaudo, 2021) The Federal Reserve of the US (Fed) and the Reserve Bank of Australia (RBA) have likewise engaged in liquidity accommodation measures since 2008 and 2020. The Federal Reserve created liquidity facilities to backstop municipal debt markets early in the Coronavirus Crisis in addition to measures by the US Treasury to bail out domestic banks. The Reserve Bank of Australia likewise committed to purchasing sovereign bonds in order to backstop Australian bond rates. In both cases, bond rates fell after these commitments by the central banks of these large developed economies within the global monetary system. (Tooze, 2021)

The Federal Reserve also expanded its international provision of liquidity. First, it added nine more central banks to its dollar swap line facility – in addition to the European Central Bank, the Bank of Japan, the Bank of Canada, the Bank of England, and the Swiss National Bank, it also added the central banks, monetary authorities, and reserve banks of Australia, Brazil, the Republic of Korea, Mexico, Singapore, Sweden, Denmark, Norway, and New Zealand. It also created the Foreign and International Monetary Authorities (FIMA) Repo Facility, which allows central banks

that lack swap lines to exchange US Treasuries as collateral for dollars. Unlike the dollar swap lines, the FIMA repo facility requires central banks seeking dollar liquidity to exchange US Treasuries they already own, rather than domestic currency denominated assets. This constrains liquidity the Fed might provide to central banks that do not qualify for swap lines.

For central banks that lack US Treasuries, or do not wish to use them for liquidity operations, the remaining international liquidity option is to exchange Special Drawing Right (SDR) holdings for more liquid assets. SDRs, issued by the IMF, are claims to bundles of global currencies including US dollars and euros. SDRs are allocated globally at the IMF's discretion. In each episode of allocation of new SDRs, the IMF allocates shares of SDRs proportional to a given economy's contributions to the IMF. The central banks of the largest global economies receive larger allocations of SDRs than peripheral economies. An allocation of SDRs appears on a central bank's balance sheet as SDR holdings on the asset side, and SDR allocations on the liability side. Central banks pay interest on their SDR allocations, and receive interest on their SDR holdings. These interest payments balance out, unless a country exchanges its SDR holdings with the central bank of another economy or an international financial institution, such as the ECB, for one of the global currencies that the SDR may be used to claim. If an economy wishes to access USD or Euros from another central bank, it may exchange its holdings of SDRs to that central bank in exchange for USD or Euros, which would decrease its SDR holdings below its allocation level, while raising the SDR holdings above allocation for the central bank transferring currency.

Within the US, the Federal Reserve created the Municipal Liquidity Facility (MLF) to purchase municipal bonds in order to prevent spikes in the interest rates US states paid on their bond-funded debt, in addition to a series of liquidity facilities intended to purchase private sector bonds and facilitate smaller bank lending. The MLF authorized the Fed to purchase hundreds of billions of dollars' worth of municipal bonds, "to offset revenue losses or increased expenses related

to Covid's impact.” (Bordo and Duca, 2021, 12) The MLF was designed to protect the Fed from losses on municipal debt defaults. Though the MLF only purchased a total of \$17 billion in muni debt by the end of August 2020, the spread between municipal bonds and Treasury bills “stopped rising in the week when the Fed announced that it would set up MLF, well before the facility opened in late May.” (Bordo and Duca, 2021, 13) Bordo and Duca (2021) argue that this rapid adjustment “suggests a strong ‘backstop’ effect similar to that of the Fed’s corporate bond buying program on corporate spreads.” (Bordo and Duca, 2021, 13)

Preliminary figures from the Federal Reserve show that it conducted many more currency transfers to central banks that received swap lines between 2019 and 2020 than it did after the GFC. The Fed extended 446,821 million USD in currency over 201 transfers to the ECB, the Bank of Japan, and the Swiss National Bank between 2010 and 2013. By contrast, it engaged in 396 transfers in 2020 alone, and it extended more than 1 trillion USD to the central banks and monetary authorities of Mexico, Canada, England, Japan, Korea, Denmark, the ECB, Singapore, Norway, Australia, and Switzerland. In 2021, it engaged in 108 transfers, over which it extended an additional 13.8 billion USD to the central banks and monetary authorities of Mexico, Canada, England, Japan, ECB, Singapore, and Switzerland. (Federal Reserve Statistics, 2022) In 2020 and 2021, the Fed extended up to 1 billion USD to foreign central banks under the FIMA repo program, and up to 21.28 billion USD in liquidity services to municipalities. While these are large figures in absolute terms, they are very small compared to the liquidity provision the Fed provided central banks that qualified for swap lines.

After the GFC in 2008 and the onset of the Coronavirus crisis in 2020, the IMF has periodically increased global allocations of SDRs. The IMF increased SDR allocation globally from 21,433, 330, 200 to 182,617,580,200 in August 2009, and then to 203,983,585,060 in September 2009. It increased global allocation of SDRs by about 60,000,000 in 2016. It increased global

allocation of SDRs by 40,000,000 between March and November of 2020, and then, in August 2021, it more than tripled the existing allocation of SDRs from 204,213,615,019 to 660,698,906,854. These allocations of SDRs increased policy space for emerging market economies, especially low-income and lower-middle-income categories to exchange SDRs for other global currencies. After the IMF's allocation of hundreds of billions of SDRs in August 2021, multiple emerging market economies exchanged large percentages of their allocated SDRs for currency or used their SDRs for payments. Chad, the Republic of Congo, Bosnia and Herzegovina, Comoros, Paraguay, Maldives, and Moldova liquidated 99.5 to 100% of their allocated SDRs for hard currency. Many low and middle-income economies have used 2 to 6% of their SDRs for payments to the IMF or to indirectly fund liquidity provision to domestic industries. (Arauz and Cashman 2021) Conversely, developed economies including the US, the Netherlands, Israel, Canada, France, Italy, Portugal, and Switzerland have seen their holdings of SDRs increase by millions of USD worth of SDRs over their initial allocation. Given the scope of SDR allocation to the largest global economies, these increases constitute less than a 2% increase. As Arauz and Cashman (2021) note, these allocations grant more liquidity space to developed economies, which qualify for other less costly liquidity services. While preliminary evidence shows that these economies are likely accepting SDRs in exchange for currency from developing economies, there is space for the IMF to reengineer SDR allocation to better prioritize the needs of economies with less access to currency swap lines, FIMA repo services, and other forms of liquidity. At the same time, nations that receive SDR allocations can be blocked from deploying their holdings, mirroring the political constraint central banks can display in their international extension of liquidity. (Sahasrabudhe, 2019)

In 2020, members of the G20 approved the Debt Service Suspension Initiative (DSSI), which would delay low income economies' obligation to repay bilateral debts to developed economies' governments. The DSSI recommended, but did not include, private creditors in its debt

forbearance scheme. (Kose, Ohnsorge, and Sugawara, 2021) This measure was extended twice, and expired at the end of 2021. Between March 2020 and December 2021, developing economies issued about 33% more sovereign debt than during previous years, yet, only two thirds of the economies that qualified for the DSSI applied for it. (Wheatley, 2021) Over this period, most emerging market economies continued to pay debt obligations to private creditors, while accruing more sovereign debt in the process. (Wheatley, 2021) The end of the DSSI in late 2021 has triggered fears of default in developing economies again liable for their debt to other governments. (Wheatley, 2022) Increasing emerging economies' access to grants that relieve debt outright would further increase emerging economies' fiscal space to navigate the ongoing costs of the pandemic. (Kose, Ohnsorge, and Sugawara, 2021) Further, as new variants of COVID have emerged in the economies with less access to vaccines compared to the richest global powers, universal action to address the pandemic in emerging economies would likewise increase fiscal space by reducing governments' obligations on that front and increasing productive capacity in those economies limited by the human costs of the pandemic.

The successful track records of liquidity provision in facilitating spending and reducing funding costs in the wake of the pandemic are a source of optimism. Measures by the Federal Reserve and the ECB have relieved funding pressures for economies scrambling to respond to a mortal pandemic with physical and economic tolls at national and municipal levels. The G20's approval of a massive allocation of SDRs to the global economy and willingness to suspend debt obligations for EMEs is likewise encouraging. Large monetary authorities should extend more liquidity services to developing economies, simultaneous with greater aid from core economies to the global periphery. If the Fed will not facilitate expenditure by EMEs unable to access FIMA repo services or dollar swap lines, its ability to facilitate federal level spending can indirectly accommodate those funding needs in more vulnerable economies.

Conclusion

This paper has argued that in order to understand fiscal space, it is important to move beyond simple ratios of government debt to GDP. Governments may legally limit their potential deficit expenditure in order to avoid private bond market dynamics that increase the cost of funding debt. As a result, external funding conditions can affect fiscal space, independent of how governments spend. It has also shown that governments directly and indirectly support financial markets through direct lending in times of crisis, as well as through their issuance of debt. Given the rising share of government bonds among overall bond issuance within these economies, and given the propensity for banks and non-bank financial intermediaries to rely on government debt for short term liquidity operations, the viability of government debt is inextricably linked with private creditors' perception of its viability, which may generate self-fulfilling crises like the Doom Loop that precipitated the Eurozone Crisis. It has emphasized the additional hurdles that small economies and EMEs face in funding fiscal debt, especially when they do not issue vehicle currencies.

At the time of writing, governments' ability to fund fiscal expenditure in the still ongoing Coronavirus pandemic remains critical to economic and broader global health outcomes. Governments have accrued debt in their physical attempts to contain the spread of disease, but also in their attempts to relieve economic pressures for economies affected by quarantine, volatile credit markets, and soaring unemployment. At multiple points since March 2020, central bank commitments to backstop bond markets have curtailed increasing costs for firms, sovereigns, and municipalities that issue bonds. (Arnold and Stubbington, 2020; Bordo and Duca, 2021) As these liquidity programs have expired, spreads on yields between economies with exorbitant privilege and those that lack it have grown to troubling degrees. (Rebaudo, 2021) The expiration of the DSSI has been followed by early defaults in EMEs on sovereign debt, despite persistent economic harm resulting from the Coronavirus pandemic. (Munevar, 2021; Diallo, 2022) Central banks'

commitments to hiking interest rates in the future present new sources of uncertainty regarding governments' abilities to spend on infrastructure and social welfare. (Kose, Ohnsorge, and Sugawara, 2021)

Pressures to reverse expansionary monetary and fiscal policies are accelerating in both developed and emerging market economies, despite the continued death toll from the Coronavirus. This paper shows that the factors that influence the feasibility of fiscal policy may inhibit the functions of fiscal policy from achieving their potential, and in ways that are likely to generate new economic stresses in these economies. More optimistically, it shows that central banks' willingness to facilitate corporate and government expenditure can reassure global credit markets. Monetary authorities like the Federal Reserve and the ECB, and international financial organizations like the IMF should commit to more expansive and egalitarian distribution of these liquidity services, especially for smaller economies and EMEs most vulnerable to private credit market volatility. Existence of these accommodation strategies that relieve sovereign and municipal funding costs may further encourage governments to soften regulations on deficit expenditure. Given the importance of fiscal expenditure in economic output, and in responding to sudden crises like the pandemic, as well as ongoing challenges like climate change, measures that promote fiscal policy should be embraced globally.

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