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The Return to Fiscal Rules

Prepared by Francesca Caselli, Hamid Davoodi, Carlos Goncalves, Gee Hee Hong, Andresa Lagerborg, Paulo Medas, Anh Dinh Minh Nguyen, and Jiae Yoo

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Governments face difficult policy trade-offs with record debt levels, tightening monetary policies, and urgent demands, including food and energy crises, the climate agenda, and population aging. Governments need to communicate fiscal plans to reduce debt sustainability risks and promote consistent macroeconomic policies. Many envisage a return to fiscal rules that had been suspended during the pandemic to strengthen credibility. This situation offers an opportunity to rethink fiscal rules and determine how governments can make fiscal policy more agile, including in responding to crises, without undermining fiscal sustainability. A risk-based medium-term fiscal framework that combines standards, rules, and strengthened institutions would strike a better balance between flexibility and credibility.

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Author's E-Mail Address:	FCaselli@imf.org; HDavoodi@imf.org; CGoncalves@imf.org; GHong@imf.org; ALagerborg@imf.org; PMedas@imf.org; ANguyen3@imf.org; JYoo2@imf.org

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Executive Summary

Fiscal policy is yet again at a critical juncture. Governments, together with central banks, took exceptional actions in response to the pandemic to tackle a highly disruptive health and economic crisis. Many countries activated escape clauses or suspended fiscal rules to create flexibility for the large fiscal response. Now, governments face a very different environment with record levels of debt, tightening monetary policies, and inflationary pressures calling for a tighter fiscal stance. At the same time, countries face pressure to address urgent challenges: food and energy crises, green transition, aging populations, and sustainable development goals. The costs of policy errors are high and a credible and well-communicated fiscal framework that promotes consistent macroeconomic policies and addresses concerns with debt sustainability will be critical.

For countries considering the return to fiscal rules, there is an opportunity to rethink fiscal frameworks. Many countries plan to set fiscal rules to guide their fiscal strategy. In some cases, large deviations from existing rules make it difficult to quickly return to the existing rules. Governments have the opportunity to undertake a more ambitious reform of fiscal frameworks to incorporate the lessons from recent decades, tackle longstanding weaknesses, and be better prepared to take on long-term challenges.

As the experiences of recent decades emphasize, fiscal policy needs to be agile and consider the interactions with monetary policy. Governments are expected to take swift and exceptional fiscal measures in response to large adverse shocks. Such actions have considerable fiscal costs and risks, requiring the buildup of larger buffers. Frameworks also need to better take into account fiscal-monetary interactions. Fiscal policy is particularly effective in managing shocks and supporting economic activity when monetary policy is constrained. When monetary policy tightens, fiscal policy needs to pay greater attention to debt sustainability.

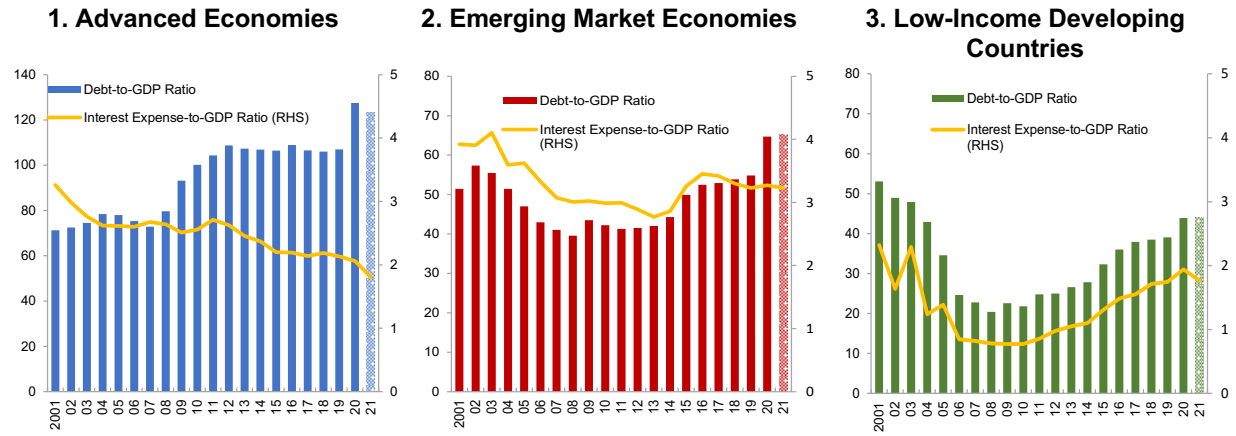
Past fiscal rules had limitations in promoting the buildup of fiscal buffers and less procyclical policies. Several rounds of reforms improved some aspects of fiscal rules over time, but deviations from numerical fiscal rules have been frequent and persistent. After the surge in public debt during the global financial crisis, few countries managed to significantly reduce debt. Some questioned the relevance of deficit and debt rules as the fall in interest rates over the last decades allowed to run larger deficits and accumulate higher debt. While fiscal limits may have risen, at high levels of public debt (like in the current environment), countries will be especially vulnerable to changes in market sentiment and disruptive fiscal crises. The evidence also indicates that fiscal rules had limited impact in making fiscal policy less procyclical especially when fiscal buffers are limited.

The breadth of challenges and risks argues for enhancing medium-term fiscal frameworks that combine more flexible rules with stronger institutions to promote sound public finances. High debt vulnerabilities make it urgent to communicate a credible fiscal path to reduce debt sustainability risks. Relying only on numerical rules to balance the policy trade-off will result in excessively complex and ineffective rules. Abandoning rules for broader standards may be too risky if investors and the public mistrust such an approach—especially when debt vulnerabilities are high. A medium-term fiscal framework that combines standards, rules, and strengthened institutions will strike a better balance between flexibility and credibility. Key elements include feasible and stable medium-term fiscal plans with transparent fiscal anchors; flexibility to respond to shocks; and risk-based rules that ensure a path to debt sustainability and buildup of fiscal buffers—while taking into account changes in the capacity to borrow. It also requires significant reforms, including reducing excessive reliance on annual budgets, incorporating climate and aging in the budget process, and upgrading transparency and independent fiscal councils.

Introduction

As countries emerge from the pandemic, they face a very different environment as financing conditions are tightening and fiscal sustainability concerns are rising. Debt levels are at or near record levels (Figure 1), reflecting the effects of the pandemic and policy responses, allowed by relaxation or suspension of fiscal rules. Recent spikes in inflation have led central banks to shift their efforts to tighten monetary policy to keep inflation expectations anchored. The outlook for public debt dynamics has deteriorated as governments are no longer guaranteed to enjoy low borrowing costs. Weaker growth prospects, large contingent liabilities associated with government support during the pandemic, and rising risk premiums further undermine the prospects. At the same time, governments face multiple challenges, including the urgent need to address the large rise in energy and food prices and the need to rebuild fiscal buffers to guard against future shocks and to address longer-term challenges such as the green transformation and pressures from demographic shifts.

Figure 1. Public Debt and Interest Expenses



Source: IMF, April 2022 *World Economic Outlook*, showing only for countries that have fiscal rules. Variables are weighted by the size of the economy.

The challenge is to design a medium-term fiscal framework (MTFF) that provides credible forward guidance to navigate policy trade-offs. Following significant deviations from existing fiscal rules and frameworks, many countries have yet to articulate a post-pandemic fiscal framework. Uncertainty around the future course of fiscal policy can be particularly problematic at present, given the combination of high debt and high inflation. A credible commitment to fiscal plans to address debt sustainability concerns, on the other hand, will yield benefits by ensuring more stable economic conditions and helping monetary policy contain inflation.

As countries return to rules-based fiscal frameworks, they should be enhanced building on the lessons of the past decades. As recent experience shows, fiscal policy is expected to act swiftly and provide large support when economies are hit by large shocks. Fiscal policy also plays a special role—as it is particularly effective—when monetary policy is constrained (operating at the zero lower bound) to stabilize the economy and support economic growth. In addition, the downward trend in long-term interest rates has raised a question whether there is too much focus on debt levels and whether debt limits or anchors excessively constrain fiscal policy. The new fiscal rules will need to tackle all these issues. They will need to allow flexibility and speed to fiscal policy when needed, but also promote larger fiscal buffers during normal times to be able to respond to shocks. Experience suggests that balancing these different issues is not easy and may result in fiscal rules that

are too complex and less effective, and a loss of credibility on the fiscal framework. In this Staff Discussion Note, the authors propose a framework that addresses these issues.

Chapter 2 discusses the post-pandemic challenges surrounding rules-based fiscal framework in the context of a new macroeconomic environment. The pandemic put to the test the fiscal rules and ability of fiscal policy to react to large shocks. In the aftermath of the pandemic, countries need to articulate medium-term fiscal strategies under much tighter budget constraints and rising concerns of debt sustainability. Returning to fiscal rules should be accompanied by reforms to increase their effectiveness.

Chapter 3 explores questions on fiscal rules in two crucial areas: sustainability and stabilization. It tackles the question of whether countries can borrow more and if debt rules, the most widely used around the world, remain relevant fiscal anchors. The decline in the neutral interest rates allowed governments to run larger deficits and accumulate significantly higher debt; but the extent varies widely across countries—and there is uncertainty around the future trends on interest rates given the large recent shocks. In addition, at high levels of debt, governments will be vulnerable to adverse shocks and changes in market sentiment, making it difficult to roll over debt, that could lead to sharp reductions in fiscal space and debt distress. The evidence also indicates that while fiscal rules may have fallen short in preventing procyclical policies, and as such could be improved, they do not appear to make procyclicality worse when compared to countries without rules.

The note concludes by discussing a revamped rules-based fiscal framework. It moves away from complex numerical fiscal rules—that attempt to balance conflicting objectives with limited success—and instead, argues for developing enhanced medium-term fiscal frameworks. In particular, international experience shows that for fiscal framework to be more effective they should include (1) fiscal plans that are feasible and stable, (2) flexibility in response to shocks, (3) transparent fiscal anchors, (4) risk-based rules that ensure a path to debt sustainability and buildup of fiscal buffers, and (5) checks and balances to promote accountability. Such an approach requires strengthening institutions and fiscal reporting and moving away from too much emphasis on annual budgets. On the other hand, the framework would allow for greater flexibility in reacting to shocks while signaling commitment to fiscal discipline. The note also discusses how to consider structural issues such as climate-related policies and demographic trends in the context of a credible fiscal framework.

The Aftermath of the Pandemic

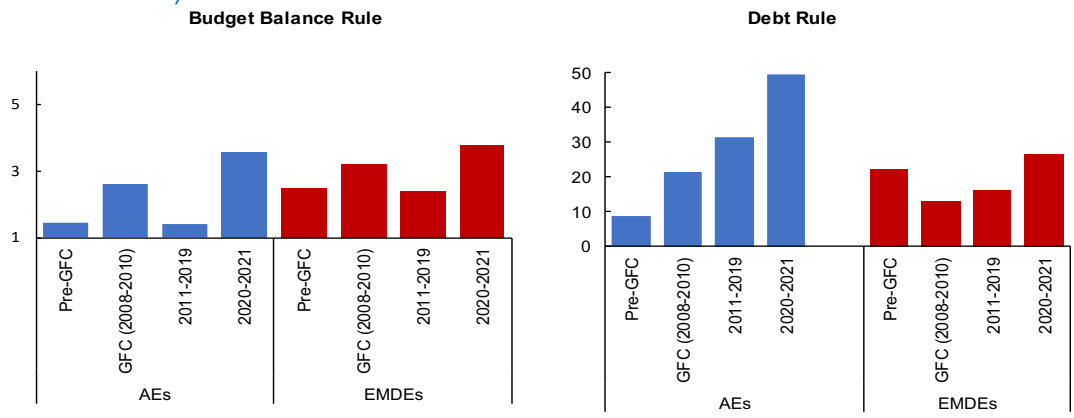
Fiscal rules had been evolving even before the pandemic to better balance different objectives. Over the last three decades, rules-based fiscal frameworks have become increasingly common across countries to tackle the “deficit bias”: fiscal rules were designed to be rigid to constrain government actions and promote compliance. However, views have been evolving especially in response to large economic crises. In particular, the global financial crisis (GFC) catalyzed reforms to make fiscal rules more flexible to respond to large shocks—an increasing number of countries adopted escape clauses to allow deviations from numerical limits within the framework in exceptional times. The European sovereign debt crisis, among others, reminded that the adoption of fiscal rules does not guarantee fiscal sustainability if rules are not respected. To enhance enforceability, formal correction mechanisms for fiscal rules were put in place in some countries.[1]

[1] See Eyraud and others (2018) and Davoodi and others (2022) for more details on how fiscal rules have evolved.

Although progress has been made, there is a concern that rules have become too complex and not as effective as hoped. Reforms to enhance flexibility and enforceability in many cases have resulted in more complex rules. For example, successive reforms in the European Union (EU) added new features over time and made the rules increasingly more complex. More generally, the number of rules adopted by a country also increased in the last two decades complicating the implementation (Davoodi and others 2022; Pappa 2020). In addition, deviations from numerical fiscal rules have been frequent, with countries exceeding the deficit and debt limits 50 and 42 percent of the time on average since 2004. There were also cases where countries changed rules frequently, in part to avoid breaching them, undermining the credibility of the framework.

With relaxations of fiscal rules, fiscal policy helped to protect firms and households during the pandemic, but these deviations also made it difficult for countries to return to the limits or anchors. In 2020, nearly 80 percent of countries with fiscal rules had their rules suspended or modified (Davoodi and others 2022).[2] The size of the deviations also increased sharply. The average deviation from debt limits rose to 50 percent of GDP for advanced economies, while the deviation from the budget balance limits also jumped for both advanced and emerging economies (Figure 2). The large deviations suggest that it will be difficult, and not necessarily desirable, to converge quickly to the limits of fiscal rules. Many countries planned to reinstate fiscal rule starting in 2021–22, but delayed further (for example, Peru, Panama, and the EU).[3]

Figure 2: Deviations from Fiscal Rule Limits, 2004–21
(Percent of GDP)



Source: Davoodi and others (2022).
Note: Positive deviations from rules refer to deficits (panel 1) or debt (panel 2) exceeding the fiscal rule limits or anchor levels. AEs + advanced economies; EMDEs = emerging market and developing economies; GFC = global financial crisis.

Fiscal councils have also played increased roles in fiscal frameworks. Fiscal councils—agencies tasked with providing independent fiscal oversight—rose to prominence following the GFC and were largely

[2] Among them, close to 40 percent of countries activated escape clauses to deviate or suspend fiscal rules. Some opted for a temporary ad hoc suspension of fiscal rules or the entire fiscal framework (Gbohoui and Medas 2020). Many developing economies modified the national rule limits by raising the deficit or debt targets to allow larger discretionary spending (Chile, Ecuador, Malaysia, Mexico, Mongolia, Namibia, Panama, Vietnam).

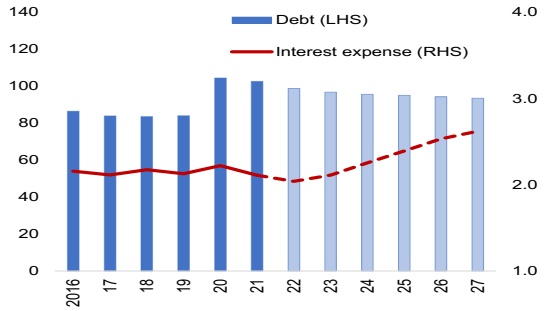
[3] In Peru, the government modified the fiscal rule, delaying achieving the nonfinancial public sector deficit objective by one year, and temporarily increasing the debt limit with the aim to return to the original ceiling in the next 10 years. Panama amended its fiscal rule in October 2020, relaxing its fiscal deficit limit by 7 percentage points of GDP, and under the revised fiscal responsibility law will return to its pre-pandemic deficit by 2024.

concentrated in the EU.[4] However, some countries established fiscal councils in the run-up to the pandemic (Brazil, Chile, Iceland, Panama, and Peru) while two countries adopted fiscal councils during the pandemic (Costa Rica and Uruguay in 2021). Fiscal councils played an important role during the pandemic by providing a range of tasks that varied in scope and across countries. The most frequently used task was rapid analysis of economic and budgetary impact of COVID-19 fiscal support (Australia, Italy, Kenya, United Kingdom, Vietnam) and the least-used task was analysis of the scale of measures taken by governments in promoting transparency in provision of COVID-19 fiscal support (Brazil, Chile, Germany, Serbia, Vietnam).

A return to the old rules?

Governments are under pressure to develop fiscal plans to ensure fiscal sustainability and economic stability. Until recently, countries were able to borrow at low costs thanks to low inflation and interest rates. Most countries are now experiencing tighter budgetary constraints due to rising borrowing costs even as debt ratios fall (Figure 3) and amid concerns about debt sustainability. Clarity on fiscal plans (taxes, spending) is important for decision-making by households and firms on how much to consume or invest today. Uncertainty on the fiscal adjustment can have contractionary effects, while efforts to reduce or stabilize debt can be less painful if fiscal plans are credible, as the borrowing costs fall and reduce the needed fiscal effort and its cost.[5]

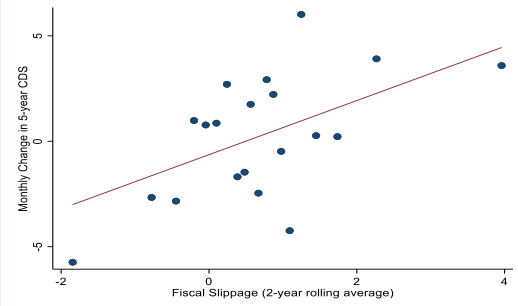
Figure 3. Global Public Debt and Interests Payments
(Percent of GDP)



Source: IMF, April 2022 *World Economic Outlook*. Variables are weighted by the size of the economy.

Many countries are relying on a return to fiscal rules to buttress credibility and fiscal discipline—but there is a debate as to whether new rules are needed. There is some evidence that rules can help contain fiscal deficits (Cordes and others 2015, Caselli and Wingender 2021, IMF 2021a). However, numerical rules have been criticized for falling short of their promises, given the prevalence of low compliance (Larch, Orseau, and Van der Wielen 2021, Davoodi and others 2022). Overly simplistic and rigid numerical rules were made more flexible to respond to shocks, but at the cost of making them more complex (Darvas, Martin, and Ragot 2018, Blanchard, Leandro, and Zettelmeyer 2021). Some countries have also made frequent changes to the rules or circumvent them undermining the credibility of the framework. Such changes at times reflected the rigid nature of the rules, but also lack of political commitment and consensus around the rules. Poor design and multiple rules have also made

Figure 4. The Change in CDS Spread on Consolidation Announcements



Source: _____.
Note: Bin scatter plot is based on 2,701 observations covering 34 countries from 2001 to 2020. Macroeconomic variables and country fixed effects are included. "Fiscal slippage" (percent of GDP), is calculated as the two-year rolling average of the difference between the announced fiscal balance for year *t* + 1 in the budget for year *t* and the actual fiscal outcome for *t* + 1. The red line in the figure is the fitted line of the regression. CDS = credit default swap.

[4] Of the 51 fiscal councils in 2021, 37 were established after the GFC, peaking in 2014 (nine countries).
[5] Bloom, Bond, and Van Reenen (2007); Fernández-Villaverde and others (2015); Bi and others (2013); Bianchi, Ottonello, and Presno (2019); Hatchondo, Roch, and Martinez (2021).

communicating fiscal policy more challenging. Some countries are already engaged in a debate or have already adopted revised fiscal rules (Colombia, EU, New Zealand, Paraguay, United Kingdom).[6]

The recent decades also brought new lessons and questions for fiscal rules—including on the ability to respond to shocks and the interaction between fiscal and monetary policies. The experience of recent decades has highlighted the very different role of fiscal policy depending on whether the economy is operating under very low interest rates and constrained monetary policy, or not. In the current environment, a credible fiscal plan can help central banks in their fight against inflation, which, in turn, would reduce the size of required policy rate increases and alleviate concerns with debt vulnerabilities. In addition, despite the adoption of numerical rules, public debt levels in many countries have grown well above what was perceived as safe, with some questioning the relevance of debt limits. At the same time, the large fiscal policy response to recent crises, with an expansion of the scale and modalities beyond traditional fiscal measures (Battersby and others 2022), show the importance of building larger fiscal buffers in normal times.

Enhancing post-pandemic fiscal frameworks will require more than improving the design of numerical rules. A key limitation of the current approach: fiscal policy remains too focused on annual budgets. This makes fiscal management more difficult, including measuring the impact of today's policies on fiscal sustainability, preparing for future shocks, and abiding by rules. Countries will also need to better account for long-term challenges. Natural disasters can severely deteriorate public finances in some countries, while climate change adaptation and mitigation are *each* expected to cost countries an additional 2-3 percent of GDP per year (Vernon, Parry, and Black 2021, IEA 2021). Countries that experience aging populations will see an increase in pension spending, absent reforms, of about 0.6 percent of GDP in advanced economies per year (IMF 2022a). Weaknesses in institutions, risk management, and fiscal transparency also need to be addressed. Developing robust frameworks will require a more comprehensive set of reforms. The next sections delve into these issues.

Debt Limits and Stabilization

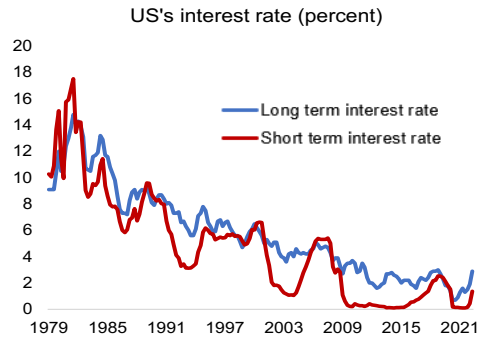
How much can governments borrow?

The long-term decline in interest rates has ignited a lively debate about rethinking the trade-offs between public debt sustainability and fiscal deficits. While short-term rates have fluctuated in response to inflation and economic slack, there is a general downward trend that reflects the decline in the neutral rate particularly in advanced economies (Figure 5). With low levels of interest rates, even lower than economic growth rates, questions have been raised about the government's capacity to borrow. Some argue that persistently low interest rate generates a "free lunch" by allowing governments to sustain higher debt levels without reducing deficits (Blanchard 2019), while others question the relevance of debt stock as a metric for debt sustainability (Furman and Summers 2020). Understanding the factors that can affect the capacity of a country to borrow is key to assess debt sustainability risks over time and set appropriate fiscal rules.

[6] In October 2021, the United Kingdom re-imposed fiscal rules with changes to support the new medium-term consolidation plan, focusing on achieving a balanced current budget and a declining debt trajectory over a rolling three-year horizon. Colombia re-anchors the fiscal framework with a transition path toward a structural balance rule with new debt anchor and new tax revenue measures. In Paraguay, a draft law was submitted to Congress to tighten the rules on primary current expenditure, refine the escape clause and strengthen the role of the fiscal council. New Zealand adopted two new fiscal rules by committing to return a measure of operating balance to a surplus and aiming for small surpluses thereafter, and a net debt ceiling to ensure a sufficient fiscal buffer to address economic shocks or natural disasters.

The environment that countries faced in recent decades suggests the need to re-estimate safe debt levels, but it remains the case that above certain levels the risk of debt distress can rise significantly. To illustrate some of the factors that drive debt limits, the authors use a model that highlights the special characteristics of government bonds ("convenience yields"; Mian, Straub, and Sufi 2022).[7] Figure 6 shows the set of *sustainable* combinations of government debt and the corresponding *debt-stabilizing* primary deficit for a typical advanced economy (AE) and emerging market (EM).[8] At a low level of debt, below "F," there is a "free-lunch" zone where higher debt can be maintained with higher deficits. The free-lunch zone is typically larger for AEs than EMs (Willems and Zettelmeyer 2022). When debt is higher, there is a trade-off between deficit and debt as the increase in debt requires the primary deficit to decline to ensure sustainability. The level of primary deficit that correspond to F is referred as the *maximum sustainable* primary deficit; public debt becomes unsustainable if countries incur persistently higher deficit levels. There is a point beyond which fiscal surpluses are required to stabilize debt (F*) when the interest-growth differential turns positive.

Figure 5. Interest Rate Dynamics



Source: Organisation for Economic Co-operation and Development.
Note: Long-term interest rates refer to 10-year government bonds; short-term interest rates are the rates of short-term borrowings between financial institutions or the rate at which short-term government paper is issued or traded.

The upper bound to a sustainable safe debt level is linked to a fiscal surplus that is economically and politically feasible to maintain over time. Based on the approach of the average maximum primary surplus for a typical advanced economy, an estimate for a debt limit is now close to 250 percent of GDP (Point LL in Figure 6).[9] Debt beyond this level indicates a very *high risk* of triggering a change of market perception on the safe asset status of government bonds and can lead to a fiscal crisis. Such a value is in line with recent estimates in the literature.[10] However, even lower levels of debt may be perceived as unsustainable—as in order to stabilize the debt at this level permanently, the primary surplus needed to be sustained *persistently* may not be politically or economically feasible. A more prudent reference for debt limits could use *the maximum sustainable level of debt associated with a primary balance that governments can sustain over long periods*—that is, it needs to be politically and economically feasible. For instance, if a country can only sustain a primary surplus of about 0.5 percent of GDP over the long term (as suggested by historical data), the corresponding sustainable level of debt would be at about 200 percent for a typical advanced economy (Point L*). That is, debt levels above L* can be seen as an area of high (and rising) risk of debt distress as markets may lose confidence on the ability of governments to deliver sufficiently high primary surpluses to prevent an

[7] These "convenience yields" are a liquidity premium, safety premium, or regulatory requirements. The model incorporates such convenience yield (Annex 2) and features an increase in interest rate as debt rises (due to crowding-out effect, effects on risk premiums, or effects on its convenience benefits).

[8] The average value masks significant variation across countries. Even across advanced economies there is significant variation in terms of long-term interest rate volatilities across countries and over time (Annex 2).

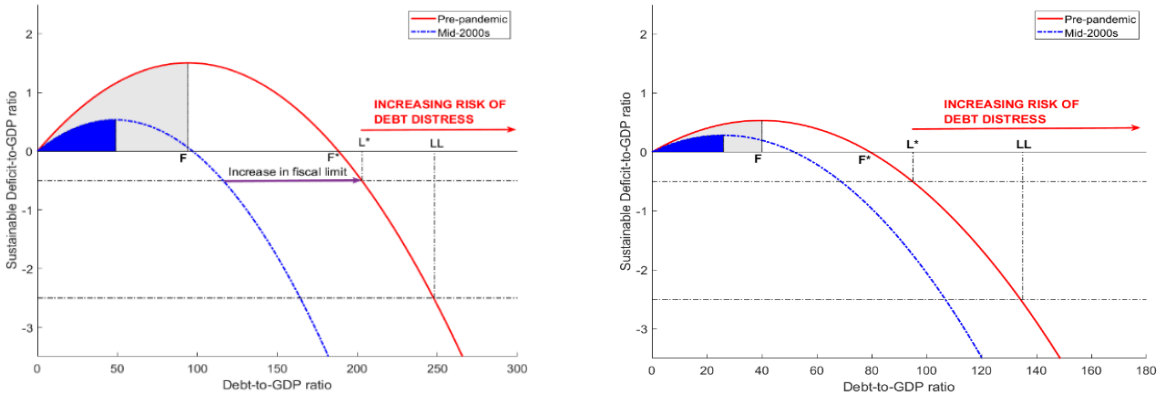
[9] This assumes that countries can reach a maximum primary surplus of 2.5. percent of GDP, the median maximum five-year average structural primary balance in past decades.

[10] Mian, Straub, and Sufi (2022) present a calibration to the US that indicates the corresponding debt level at flipping point (point F*) and 2.5 percent of primary surplus (point LL) would be 220 and 272 percent of GDP, respectively. For the United States, Bi, Shen, and Yang (2022) find that the probability of default reaches 70 percent at a debt level of 275 percent of GDP.

unsustainable rise in debt—which would exacerbate rollover risks of public debt—or to respond to adverse shocks (too low buffers). The corresponding debt level for a typical EM is 95 percent of GDP.

Figure 6. Fiscal Limits

1. Typical Advanced Economies **2. Typical Emerging Market Economies**



Source: IMF staff estimates.
Note: The estimations are based on the weighted average of each income group, weighted by the size of the economy. The vertical line crossing point LL relates to the maximum sustainable primary deficit and its corresponding debt-to-GDP ratio. The pre-pandemic year uses 2019 data. Mid-2000s is from 2000 to 2009. See Annex 2 for details.

The long-term decline in the neutral interest rates increased governments' ability to borrow over time. Figure 6 shows two lines for each income group, depicting two different time periods: mid-2000s (blue) and the baseline of the pre-pandemic year (red). The key difference between the two periods is that global interest rates are higher for the earlier period. As a result, the line shifted outward, implying larger fiscal space. Specifically, for a typical AE, the maximum sustainable deficit tripled from 0.5 to 1.5 percent of GDP, and its maximum sustainable debt level increased by almost 100 percentage points. The decline in interest rates also benefited emerging markets, as the maximum sustainable debt level rose from 70 to 95 percent of GDP.

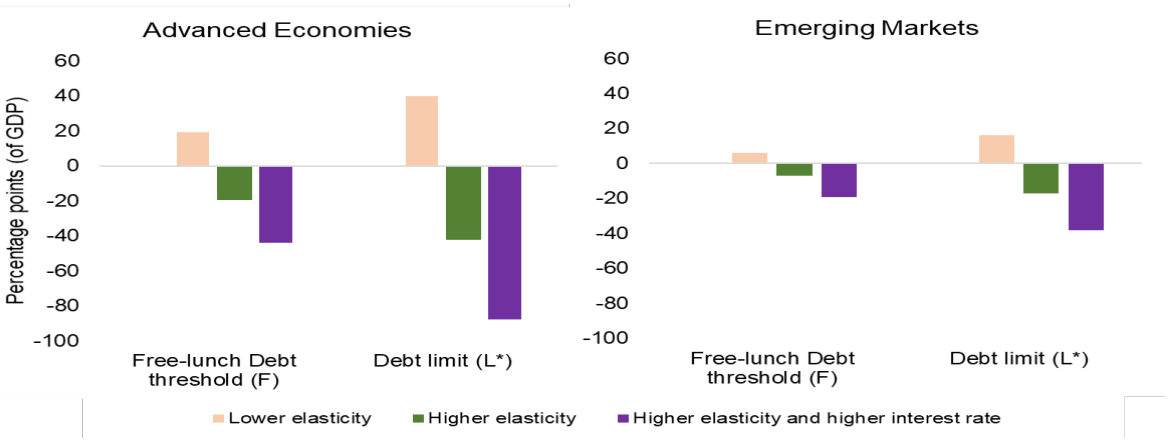
The fiscal limits also depend on other factors and can vary significantly across countries and over time—when setting fiscal rules, governments need to take into account uncertainty around key macro-financial variables and other risks. The safe asset status of government bonds depends on structural factors, beyond the level of neutral interest rates, such as the quality of institutions, policy frameworks, and policy decisions. In addition, fiscal pressures from long-term challenges (climate change and population aging) could affect the ability of government to run large surpluses to stabilize debt. But fiscal limits also depend on factors that could shift considerably in a short-time horizon:

- Changing market conditions and risk perceptions of investors can lead to sharp changes in what is a safe debt level. In particular, when governments are operating with debt in areas considered riskier, they may face heightened risks in rolling over their debt, especially if the maturity of debt is short or if the share of public debt denominated in foreign currency is high. Tightening global financing conditions can lead to a loss of attractiveness for government debt, especially for EMs, and capital outflows (while some AEs will benefit from a preference for their debt as a safe asset during crises). Figure 7 illustrates a scenario with

an increase in neutral interest rate coupled with a larger elasticity of interest rate to changes in debt.[11] Under the high elasticity scenario, the thresholds for debt limit decline significantly for both AEs and EMs, by 100 and 50 percent of GDP, respectively (purple bars). This example emphasizes that there can be very large differences across countries and over time on what is perceived as a safe debt level.[12] It is important to select a prudent debt anchor sufficiently distanced from debt limits (Brunnermeier, Merkel, and Sannikov 2022).

- Governments need to consider uncertainty around long-term trends of key macro variables. For instance, while the downward trend in the neutral interest rates may continue in the future (Gopinath 2022), there is considerable uncertainty on how long the current environment of tightening monetary policy and higher rates will last. In addition, history tells us that even long-term interest rates can be very volatile, especially around economic crises—Figure 8 shows the wide variation of long-term interest volatility across some advanced economies.[13] This implies that fiscal limits can change significantly over time (and between countries). Countries with higher debt will be more vulnerable to such shifts that could trigger fiscal crises.

Figure 7. Sensitivity of Debt Thresholds
(Deviation from the Baseline Value)



Source: IMF staff estimates.
Note: Baseline elasticity: 0.017 (see also Figure 6), lower elasticity: 0.012, and higher elasticity: 0.03. In the "Higher elasticity and higher interest rate" scenario, the elasticity is 0.03 and the initial nominal interest rate is 1.5 percentage point higher than the baseline. Debt limit is the debt level associated with the maximum sustainable primary balance of 0.5 percent of GDP.

The current context of high inflationary pressures also highlights the importance of price stability to protect the attractiveness of government bonds. For example, the successful control of inflation since the early-1980s contributed to a significant improvement in the attractiveness of US government bonds and helped drive the long-term decline in the US interest rates. More generally, a simple empirical analysis demonstrates a positive correlation between the central bank independence and lower sovereign borrowing costs (Annex 2). In the model presented above, the direct impact of a temporary and unexpected increase in inflation on fiscal

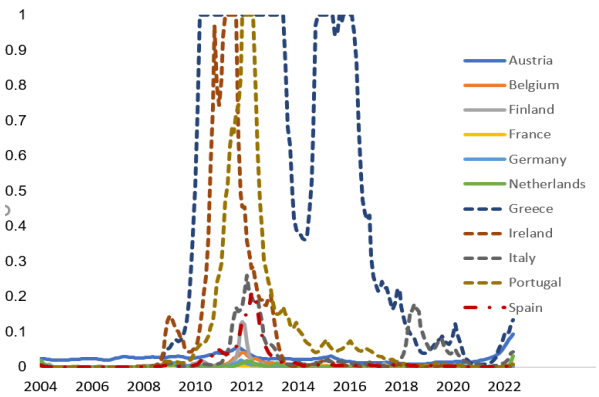
[11] The difference in the sensitivity of interest rates to debt is another source of heterogeneity across countries and can also vary over time. This sensitivity reflects the assessment of investors on the risk of holding additional sovereign bonds—the more sensitive the interest rate is to changes in debt, the smaller the debt thresholds

[12] See Sovereign Risk and Debt Sustainability Framework for Market Access Countries (IMF 2021) for a detailed discussion on operational tools to assess debt sustainability for an individual market access country, including under IMF programs. For low-income countries, see the joint WB-IMF LIC DSA (IMF 2017).

[13] See also Arellano (2008) and Mauro and Zhou (2021) evidence that debt defaults are many times preceded by sharp spikes in spreads and recessions.

limits is positive, as inflation lowers the real value of public debt. However, if investors begin to worry about inflation risks and lose confidence in the central bank's actions, the fiscal space shrinks as investors will require higher premiums to compensate for the losses due to high inflation (Rudebusch and Swanson 2012). Resorting to unorthodox policies, such as financial repressions, will further impair the attractiveness of governments bonds and decrease the fiscal space in the future (see also Reis 2022).

Figure 8. Euro Area's Long-Term Interest Rate Volatility



Sources: Organisation for Economic Co-operation and Development; and IMF staff estimates

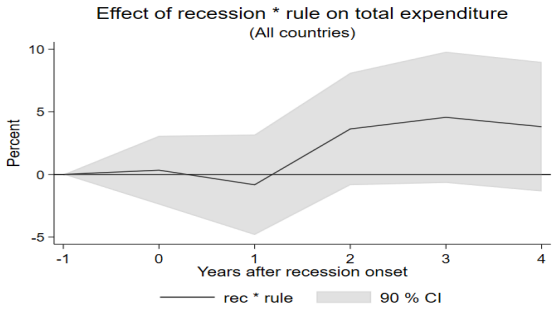
Note: The figure shows the time-varying volatility of long-term interest rate estimated from a vector autoregressive model with stochastic volatility including long-term interest rates for countries in the euro area. For visualization purpose, values greater than 1 is set at 1.

Overall, debt levels remain an important anchor for fiscal policy, but some caution is needed when designing debt rules. They should be calibrated taking into consideration the country specificities, institutions, and degree of risks. This cautions against using similar debt anchors across countries to signal commitment. It is also important to bear in mind that fiscal limits, while relatively stable, can change over time—and sometimes suddenly—requiring a periodic review of the country's capacity to borrow and comprehensive assessment of risks. Finally, large shocks such as the pandemic could push countries far from the previous path and the initial debt anchor may no longer be a realistic guide for medium-term policies—the focus should be on rebuilding fiscal buffers at an appropriate pace.

Are fiscal rules too restrictive?

A criticism of fiscal rules is that they may constrain desirable government policies, especially the response to adverse shocks. In principle, fiscal rules help avoid procyclical policies as they should reduce the deficit bias and promote healthier public finances. On the other hand, there are concerns that rigid fiscal rules could make rules more procyclical, not allowing countries to adjust to economic circumstances (putting too much emphasis on sustainability versus stability). Many countries have adjusted the design to make rules more responsive, including by adding escape clauses, but concerns remain that rules may not be flexible enough.

Figure 9. Spending after Recession: Countries with Rules Versus Those Without Rules



Source: IMF staff estimates.

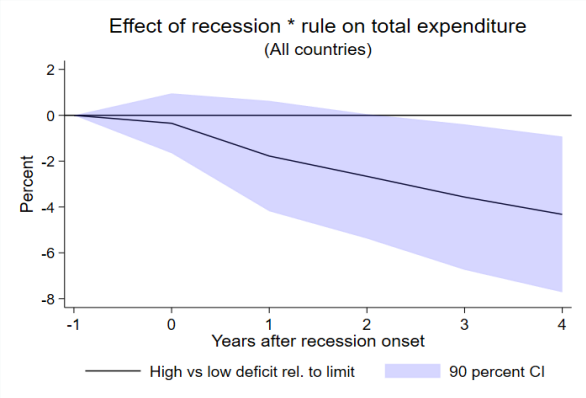
Note: The figure shows the cumulative effect of a recession on total and capital spending for countries with fiscal rules relative to countries without fiscal rules. The error bands correspond to 90 percent confidence intervals (CI).

The authors examine countries' fiscal response to adverse shocks to assess whether those with rules are more or less procyclical than countries without rules and to what extent the type of rules, the size of fiscal space and other factors matter. Using novel panel local projection methods, the authors study the relationship

between fiscal rules and cyclicality of fiscal policy focusing on recession periods for 71 countries from 1975 to 2019 (Annex 3).[14]

Countries with more fiscal space tend to have a more countercyclical policy response. In general, our analysis does not show significant difference in the fiscal policy response to recessions between countries with or without rules (Figure 9). In both cases, total expenditures tend to fall following a recession—suggesting rules do not tend to help make fiscal policy more countercyclical, but also do not make it worse. The authors also do not find evidence that countries with rules tend to cut more capital spending—the behavior is similar across countries suggesting that other factors are at play (Annex 3).[15] The availability of fiscal space is a relevant factor. Countries with pre-recession deficits closer to or above their rule limits constrained spending relatively more, emphasizing the importance of rules creating incentives to build buffers (Figure 10, Annex 3). Furthermore, countries with low pre-recession debt levels (and interest bills) seem to spend relatively more during the recovery period (Annex 3).

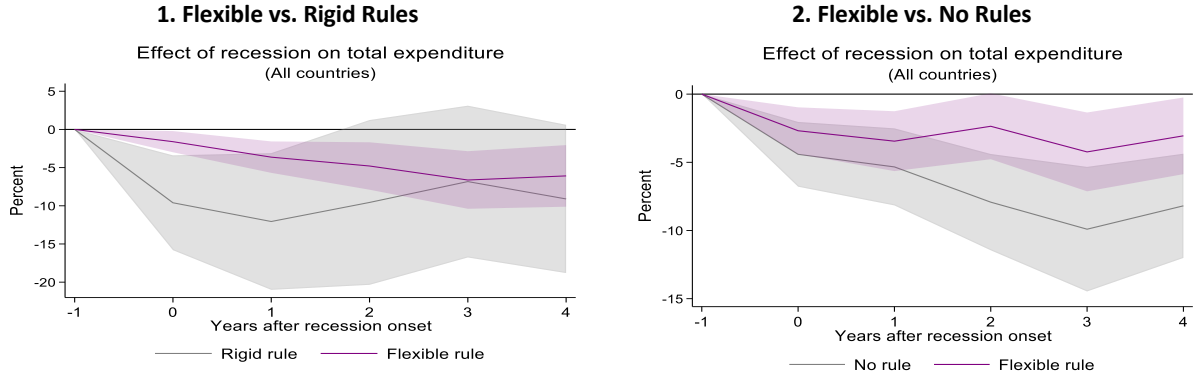
Figure 10. Spending and Fiscal Space



Source: IMF staff estimates

Note: This figure reports the cumulative effect of a recession on total expenditure for countries with fiscal rules comparing countries with high versus low deficit levels relatively to the rule limits (75th vs. 25th percentiles), relative to countries without fiscal rules. CI = confidence interval.

Figure 11. Flexible Rules



Source: IMF staff estimates.

Note: The panels in the figure report the cumulative effect of a recession on the outcome variable, for countries with flexible versus rigid fiscal rules (panel 1) and versus no rules (panel 2). The error bands correspond to 90 percent confidence intervals.

[14] The analysis focuses on recession episodes to observe the behavior of fiscal policy under an exogenous shock. The authors address endogeneity issues for the economic cycle and fiscal rules adoption by measuring the response of real government expenditure in years post-recession, employing a difference-in-difference approach (see Annex 3). The analysis is robust to an alternative methodology, samples, and different types of rules.

[15] Countries cut both current and capital spending, with no difference between rulers and non-rulers, consistent with findings for Brazil and Chile (Bonomo and others 2021, Fuentes and others 2021) but not in Peru (Mendoza Bellido and others 2021).

In addition, countries with more flexible rules tend to have a more countercyclical policy response. Among countries with fiscal rules, those with flexible features (cyclically adjusted targets and/or well specified escape clauses) are, on average, able to conduct a less procyclical fiscal policy response (Figure 11, Annex 3). These findings are consistent with a large body of empirical studies that highlights the importance of fiscal rules that allow for flexibility to prevent procyclicality (Bova, Carcenac, and M. Guerguil 2014; Guerguil, Mandon, and Tapsoba 2017; Ardanaz and others 2021, to name a few). Compared to not having a rule, countries with flexible rules are better at maintaining their capital spending levels when hit by recessions. They are also shown to constrain government expenditure by less in the recovery phase, starting two years after the recession (Figure 11, Annex). Finally, on average, rules do not seem to constrain countries' fiscal policy response in small recessions and downturns; if anything, rules seem to reduce procyclicality in such cases (Annex 3).

Post-Pandemic Rules-Based Fiscal Frameworks

Many countries are considering a return to fiscal rules to signal fiscal commitment and anchor the needed adjustment. Rising debt vulnerabilities, as financial conditions tighten, make it urgent to communicate a credible fiscal path to reduce sustainability risks and support monetary policy in controlling inflation. Reverting to previous rules is one option, but with limitations, as discussed above. Some propose broader principles or standards to guide fiscal policies with greater flexibility instead of numerical rules that could lead to worse outcomes under uncertainty (Blanchard, Leandro, and Zettelmeyer 2021). However, this approach is not without risks. Markets and the public may not fully trust commitment to principles if countries rely solely on them, as it is more difficult to monitor the track record, particularly in the absence of transparency and accountability mechanisms.

An upgraded medium-term fiscal framework that combines more flexible rules and strengthening institutions to promote sound public finances could strike a better balance. It argues for less reliance on complex and long-lasting numerical rules and instead developing more effective medium-term fiscal frameworks with the elements to balance different goals.[16] Past experience shows the importance that fiscal framework include (1) medium-term fiscal plans that are feasible and stable, (2) flexibility in response to shocks, (3) transparency on fiscal anchors, (4) risk-based approach that ensure a path to debt sustainability and buildup of fiscal buffers, (5) checks and balances. Providing a medium-term perspective to budget processes enhances fiscal management. It allows to adjust the path of policies, while converging to medium-term anchors, based on the economic environment. Risk analysis helps manage shocks, determine limits to borrowing capacity, and identify when fiscal buffers are low. In the case of larger shocks, such as the pandemic, escape clauses can allow significant flexibility within the framework. Finally, independent fiscal institutions provide additional checks and balances to promote greater accountability and transparency.

Credible medium-term forward guidance

A credible MTFF serves as a forward guidance to annual budgets to be consistent with the medium-term fiscal anchor. Medium-term fiscal plans have long been proposed to reduce over-reliance on annual budgets. However, in practice their effective use has been limited. Giving annual budgets a medium-term

[16] For example, Australia and New Zealand combine well-developed fiscal frameworks with broad principles (for example, on debt sustainability) with more flexible numerical rules or guidelines. Chile and Norway also rely on more flexible guidelines and rules supported by strong institutions and transparency on fiscal plans.

perspective helps build the credibility of fiscal policy, as most budget decisions span more than one year (IMF 2018a). Medium-term fiscal strategies are shown to mitigate overspending and inertia in budgeting, while promoting transparency and alleviating time-inconsistency and the common-pool problems (Wildavsky 1986, Schiavo-Campo 2009; Sherwood 2015). However, using medium-term plans as policy guidance has been challenging due to political economic factors and capacity constraints, among others (Vlaicu and others, 2014). Countries prepare medium-term fiscal statements, but in many cases, they are only loosely linked to annual budgets that remain the dominant tool to set priorities.

The following elements can help strengthen the forward guidance by medium-term fiscal plans:

Medium-term fiscal plans should be at the core of the budget process. MTFFs lay out multiyear projections of the key aggregates (expenditures, revenues, and budget balances), analysis of past budgetary outcomes and costing of new measures. Annual budgets will still reflect specific and evolving demands and priorities but should be consistent with the medium-term guidelines and rules.

Set clear medium-term anchors and fiscal strategy that are consistent with policy goals and ensure a path to fiscal sustainability. The choice of fiscal anchor should be communicated clearly including the rationale for the choice. This is important as it also affects the economy as both firms and households take decisions based on their expectations regarding taxes and spending policies. The choice of anchors will depend on the country's priorities but should be a relevant fiscal aggregate that helps guide overall fiscal policy for the country or for the currency union.[17] Countries where fiscal vulnerabilities are high should set medium-term anchors consistent with a reduction in vulnerabilities over time, whereas countries with lower vulnerabilities should set anchors consistent with maintaining vulnerabilities at a low level.[18] Regular reviews of the framework (for example every five years or after large shocks), can ensure its effectiveness and relevance over time, but should not be too frequent or ad hoc to avoid undermining the credibility of the framework.

Establish operational fiscal rules that translate medium-term fiscal plans into actions. Instead of having numerical rules that are long-lasting and complex to accommodate for different circumstances (for example rules based on estimates of potential growth or output gaps that are unobservable), the operational limits are set in the medium-term plans (binding for the period of the plans) based on macroeconomic projections and consistent with the medium-term anchor. For instance, multiyear expenditure ceilings, which have been adopted in many countries, can be effective in ensuring consistency between budgets and medium-term anchors. The limits on expenditures or other fiscal aggregates would be adjusted periodically (say every three to five years) based on a baseline economic scenario and, depending on the choice of the rules; cyclical variations could be managed within the medium-term framework. For example, a MTFF with expenditure ceilings would allow for not reaching the anchor if growth or revenues disappoint while still meeting the rules. Escape clauses can be used to accommodate exceptional circumstances and large adverse shocks (see below).

Use independent forecasts to strengthen credibility. Given the flexibility in the framework to set a path toward the anchor based on the projections, it is crucial that the macroeconomic assumptions and estimates on new

[17] The debt anchor, a commonly used indicator, helps guide fiscal policy over the medium term (Eyraud and others 2018). However, budget balances have also been adopted as medium-term anchor. Anchors for currency unions will also have to consider the right balance between union and member countries objectives and priorities; for example, see IMF (2022c) on reforming fiscal rules in the European Union.

[18] For example, countries could target a debt-primary balance combination that is sustainable over the long term.

measures or reforms are credible. The framework should include alternative scenarios and risk analysis to help assess risks associated with the plans. In practice, actual fiscal and economic outcomes can deviate from the projected path, due to either (1) surprises like natural disasters or (2) more systemic overoptimistic projections. A thorough risk-analysis can help better reflect risks in fiscal plans due to surprises. Systemically optimistic projections, on the other hand, require a different approach to avoid leading to poor fiscal outcomes (Box 1). Countries could rely on independent forecasts as inputs to the medium-term fiscal plans and annual budgets to increase credibility of the framework.[19] Fiscal councils could provide independent macroeconomic forecasts and estimates of effects of fiscal measures or reforms proposed by the government as inputs for fiscal plans and budgets. In many countries fiscal councils already produce estimates (for example, Brazil, Romania, United Kingdom, United States), but they are not binding. Evidence across countries shows that fiscal councils can play a role in reducing forecast errors and undue optimism (Annex 1).

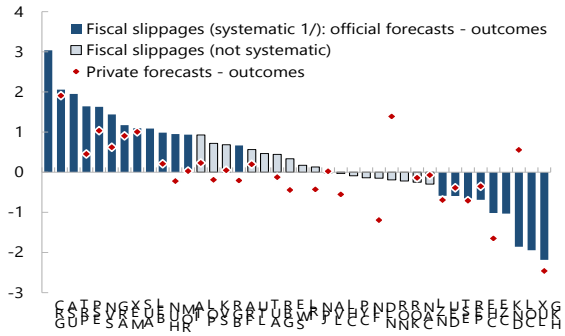
Box 1. The Perils of Overoptimism

Overoptimism in macroeconomic and fiscal projections is a common culprit for weak track record and procyclical fiscal policy. Overoptimistic growth and fiscal projections generate fiscal slippages when growth disappoints (Beetsma and others 2021, Larch, Orseau, and Van der Wielen 2021). Fiscal slippages may arise due to unforeseen events like the pandemic. But, in some countries, systemic optimism bias in fiscal planning a persistent discrepancy between official projections and fiscal balance. The fact that official forecasts tend to be more optimistic than private forecast indicates that government's fiscal actions are partly responsible for fiscal slippages, as surprises to growth that were not perceived by either official or private forecasts do not fully account for larger forecast errors by official projections (Box Figure 1.1, panel 1).

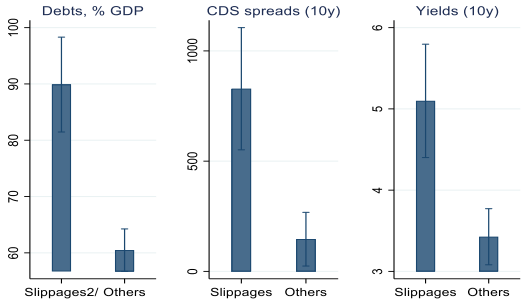
Countries that miss official targets tend to incur repeated fiscal slippages. Fiscal slippages tend to be persistent in some countries (Annex 1). Fiscal slippages are associated with faster debt accumulation over the medium term—over and above the level which a similar fiscal balance path would have delivered without slippages. This could be related to higher sovereign spreads associated with larger fiscal slippages (Box Figure 1.1, panel 2).

Box Figure 1.1. Overoptimistic Projections and Their Economic Implications

1. Official vs. Private Forecasts



2. Repeated Fiscal Slippages and Implications



Sources: Consensus Economics; national authorities; IMF, *World Economic Outlook*; and IMF staff estimates.
Note: The sample consists of 43 countries including advanced and emerging market economies in Europe, the Americas, and Asia during 2000–19. Fiscal slippages are measured by the difference between the government's announced plans (one-year ahead) and final fiscal outcomes. Private forecasts are proxied by Consensus Forecast. Data labels use International Organization for Standardization (ISO) country codes.
[1] Systematic = statistically significantly different from zero.
[2] "Slippages" refer to the cases where fiscal slippages repeated for three consecutive years.

[19] Use of independent forecasts can enhance credibility (Frankel and Schreger 2016). In the case of overoptimism, independent forecasts may reduce the bias (End and Hong 2022).

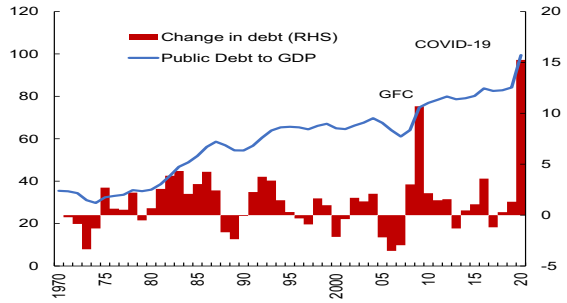
Another pillar of the framework involves a major revamp in the quality of government finance statistics. There is significant space to improve fiscal reporting, including coverage and timeliness. Accrual accounting methods should become the norm. Moreover, moving toward a comprehensive public sector balance sheet approach would allow a full view of government actions and risk exposures. In many instances, fiscal outturns turn out worse than planned due to surprises that reflect lack of comprehensive data and monitoring of the public sector. For example, risks from state-owned enterprises or extra-budgetary activities can lead to costly bailouts or recognition of liabilities by central governments. A systematic inventory of assets and liabilities would lead to better monitoring of the government net worth and a sounder approach to the valuation of public sector investments and better budget planning. This will be a process that will take time, but it is crucial to improve transparency and governance. Low-income countries who face significant capacity constraints will need to engage in more gradual improvements of their fiscal frameworks, while prioritizing measures to strengthen public finance management system and to increase transparency in reporting (IMF 2018b).

Risk-based Fiscal Frameworks

Fiscal buffers needed to manage adverse shocks may be larger than previously thought given the new role of fiscal policy in managing large crises. Global debt surged in 2009 and 2020 (Figure 12, panel 1) as countries, hit by sharp economic contractions, took large and unprecedent fiscal measures--as evidenced by the large size of announced fiscal measures in 2020 (Figure 12, panel 2). These announcements of fiscal support can be important to stabilize economies during crises but rely on strong public finances to be credible and not generate concerns with future fiscal sustainability. Borrowing constraints could severely impair the ability to respond to shocks. Moreover, large debt surges can lead to persistently lower economic growth especially if initial debt levels are high (Jalles and Medas 2022). Fiscal frameworks need to ensure there are the appropriate incentives to build commensurable buffers.

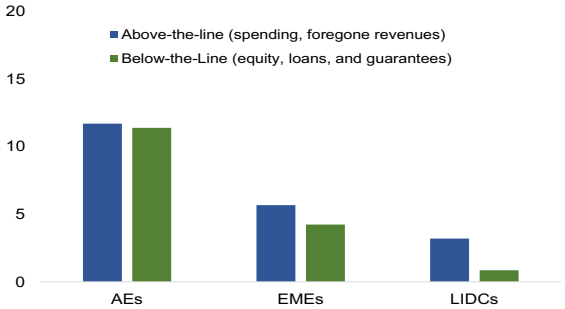
Figure 12. Size of Fiscal Interventions during Economic Crises

1. Global Public Debt
(Percent of global GDP)



Sources: IMF, Global Debt Database; and IMF staff calculations.

2. COVID-19 Fiscal Measures
(Percent of GDP)



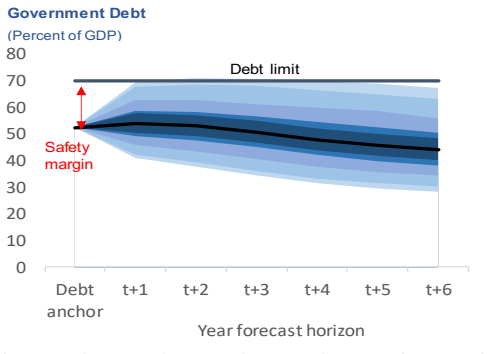
Source: IMF, Database of Country Fiscal Measures in Response to the COVID-19 Pandemic. AEs = advanced economies; EMEs = emerging market economies; LIDCs = lower-income developing economies.

Fiscal plans should have a greater emphasis on risk assessment. The principles guiding a risk-based approach are (1) plans and rules should be tighter and envisage more ambitious fiscal consolidation paths, depending on the degree of risks to debt sustainability in the short and medium term; (2) rules should incentivize buildup of buffers over time even if there is no immediate, high risk of debt distress; and (3)

they should incorporate well-defined escape clauses to allow greater flexibility when hit by shocks.[20] The design and calibration of fiscal rules should be linked more closely to an assessment of fiscal sustainability risks based on a comprehensive set of indicators such as market financing conditions (for example, spreads), macro and fiscal conditions, and structural factors. It should assess debt risks in the short-, medium-, and long-term (for example, the EC Fiscal Sustainability Report or the IMF Debt Sustainability Framework for Market Access Countries IMF 2021b). Debt sustainability analyses can capture the multidimensional nature of risks, including the path for fiscal variables under different scenarios, but they will require strengthen risk analysis.[21] For countries with high debt vulnerabilities, especially in the short term, the fiscal plans and fiscal rules should be set to prioritize reducing public debt. The rules-based framework should impose less flexibility given the priority is to reduce risks and avoid debt distress.

Another critical component is setting fiscal anchors that are consistent with buildup of sufficient fiscal buffers—a generalized weakness of existing frameworks. Countries need fiscal buffers to manage normal volatility of macro variables that affect fiscal accounts—including business cycles and changes in financial conditions. However, as the last decades have shown, countries need larger buffers than previously thought to ensure that governments can act fast and decisively in response to large crises. The framework should envisage rules that incentivize the accumulation of appropriate buffers over time. Their size will depend on the assessment of risks and the degree of risk aversion of governments (for example, cost of fiscal adjustment). The fiscal rules should promote the gradual build-up of buffers, for example by setting a medium-term anchor consistent with a safe debt level—that is, even if the country is hit by an adverse shock, debt would stay below a level (limit) where the risk of debt distress increases significantly. Specifically,

Figure 13. Building Enough Buffers



Source: IMF staff estimates.
Note: The buffer is calculated by simulating shocks based on historical data (see How to Calibrate Fiscal Rules: A Primer).

- Estimating ***debt limits***, above which public finances are no longer sustainable, is challenging as it depends on several factors including credibility of fiscal plans. Given the high uncertainty, it is advisable to choose a prudent debt limit. As discussed in the previous section, countries can use as a reference a debt level that is consistent with the maximum primary balance that a country is willing and able to sustain over a longer horizon. Choosing a higher debt would imply taking higher risks. The farther away the debt is from such threshold the higher the risk of loss of market confidence (and higher rollover risks) and debt distress. [22]

- The ***safety margins (buffers)*** should be defined such that government debt exceed their limit only with a low probability when accounting for risks. To achieve the size of buffers, countries could set an explicit medium-term debt anchor that is lower than the debt limit by at least the estimated size of the safety margin. Alternatively, countries could set medium-term anchors (for example, overall balance) that leads to the buildup of the buffers. [23] The size of buffers depends on the country-specific volatility of key macro-

[20] It will also require effective monitoring, management, and control of fiscal risks, including contingent liabilities.

[21] Canada, New Zealand, and the United Kingdom also adopted comprehensive fiscal risk-assessment frameworks.

[22] For IMF programs, the operational definition of debt limits is set out by the debt limits policy taking into account the nature of debt vulnerabilities and country-specific circumstances (Public Debt Limits in IMF-Supported Programs).

[23] Some countries have adopted medium-term structural balance anchor (Chile) and non-oil structural deficit reflecting the long-term rate of return on assets (Norway).

fiscal variables (for example, economic growth, interest rates, exchange rates) and how they affect the fiscal accounts and the debt path (Figure 13). It also depends on debt management (composition of debt) and on the trade-offs with other policy priorities. Low-income countries may focus more on development needs, which also improve the resilience to shocks, and less on fiscal buffers (IMF 2022d). The lower the buffers, the more limited ability to adopt countercyclical policies and manage large shocks.

- A country whose debt level exceeds the safety margin to its debt limit should commit to a medium-term fiscal path that brings it back to the anchor over time. The pace of adjustment set in the fiscal plans should be based on an assessment of risks—the higher the risk, the faster the adjustment—and the macroeconomic environment. The risk-based fiscal anchors should be reviewed periodically to adjust for changes in economic or institutional factors that increase or reduce fiscal limits and size of buffers.
- Many developing economies dependent on commodity exports (for example, oil exporters) and those highly vulnerable to natural disasters will need to design anchors and rules having in mind the different types of shocks. In general, these countries should build up larger buffers given they tend to be more vulnerable to large and persistent shocks and countries that are vulnerable to natural disasters will likely need to build larger buffers.[24] For commodity exporters, frameworks should also be resilient to large positive terms of trade shocks that can have disruptive effects in the domestic economy—fiscal policy can play a key stabilizing role and take advantage of those periods to build larger buffers.

In times of major economic shocks, escape clauses can be activated to allow for greater flexibility. Escape clauses should have well-defined transition paths to guide fiscal policy after large shocks—at a minimum, requiring presenting a medium-term plan showing a return to the rule or setting a revised medium-term fiscal anchor. This could be time-bound or data-driven, where the latter approach may give more credibility in the face of larger shocks when a time-bound return to the fiscal rule limits can be too restrictive. In particular, when deviations from rules are large, countries can consider the following two options: (1) set a transition period based on operational targets over the medium-term and gradually converge back to the rules. Limits on fiscal balances or expenditure ceilings can be used as they are easy to monitor and communicate. It can include specifying a state-dependent transition period, such as Canada or Australia's guardrails to link fiscal action to job market conditions; (2) recalibrate a medium-term fiscal anchor if the old rules are no longer relevant or feasible and should be clearly communicated to the public.

Better integrating long-term challenges—climate and aging

Fiscal frameworks need to better incorporate long-term challenges that have large fiscal implications, especially climate change and population aging. Today's actions involve important trade-offs and can have long-lasting effects. For example, governments are now weighing how to tackle the climate crisis, addressing other sustainable development goals, and rebuilding fiscal buffers to avoid debt distress. While some countries publish some information on long-term trends (for example, pensions), in general the implications are not incorporated in medium-term plans or annual budgets despite the large fiscal implications. For instance, IMF (2022a) estimates that among advanced economies between 2021 and 2030, annual pension spending will rise by about 0.6 percent on average, and some countries will see rises in pensions by more than 1 percent of GDP (for example, Belgium, Italy, Korea, New Zealand). Health care spending is also expected to increase

[24] Large natural disasters can raise government expenditures by an average of 15 percent and lower revenue by 10 percent over the five years (Melecky and Raddatz 2011). Due to the asymmetric nature of large shocks, and an expected increase in shock size and frequency, buffers may need to be larger (Gbohoui and Akanbi forthcoming).

substantially in the same period, although there is high uncertainty, and in some cases the rise in health care spending will be substantially larger than that of pensions (for example, Japan, United Kingdom, United States).

To strengthen the quality of policies, governments can prepare long-term projections and implications for fiscal sustainability and ability of government to provide services over longer periods. For example, comprehensive assessments of long-term fiscal impacts of climate change, including the costs of adaptation and mitigation under different policy choices, can help gauge implications for fiscal sustainability. [25] Countries can strengthen budget processes to better consider challenges. There is still a long way to improve budget processes to fully monitor and assess budget programs and their "green" impact. For countries with large aging challenges, having long-term projections for key items related to aging, including pensions and health care, will help better design fiscal plans and calibrate fiscal rules. Governments can also define a path for aging -related expenditures and consider triggers if outturns are higher. For example, pensions would need to be adjusted or taxes increased if no other reforms are taken.

Green fiscal rules?

Another ongoing debate is whether spending related to the climate agenda, given its urgency, should be exempted from fiscal rules. Beyond the damage climate change imposes on the planet and the economy, it also has an impact on public finances through several channels. Governments play a key role in devising the mix of mitigation and adaptation policies, including carbon taxes and public finances (IMF 2022b, Vernon and others 2021). In addition, climate damages negatively influence public finances through reconstruction costs and social safety net programs in response to natural disasters, lower revenue collection, and higher public healthcare costs. A rise in investments in the next decades is needed, but after the initial cost to set up a low-carbon environment is incurred, investments needs will subsequently decline. In this context, some are calling to revise fiscal rules to protect green investment as governments are expected to undertake fiscal adjustments.

It is important to understand the policy choices that governments will face when considering possible exceptional treatments for climate spending. The decision as to what mix of fiscal tools to use, and its implications for the budget, climate, and growth, require complex and evolving policy decisions. For example, the UK Office for Budget Responsibility (2021) models a transition toward the Paris agreement goals by simulating various combinations of fiscal measures, finding that borrowing initially increases but subsequently falls due to additional carbon tax revenues, but with net receipts falling due to the transition putting public debt on a rising path in the medium- to long-term.[26] The private sector will also need to play a role by increasing low-carbon investment and supporting the transition away from carbon-intensive sectors. Governments will need to create the right incentives and provide public investment as needed. Overall, governments will need to make policy choices that could have profound impact on fiscal dynamics over time and on people's lives. These need to be considered within the overall budget process to ensure a comprehensive reform package that addresses the climate change priorities, distributional implications, and safeguards fiscal sustainability.
In this context, trying to design numerical "green" rules is likely to prove difficult and lead to undesirable consequences. Some proposals, focusing mostly on the EU context, have included the use of

[25] In New Zealand, legislation requires that the Treasury produces a *Statement on the Long-term Fiscal Position, an Investment Statement, and a Wellbeing Report* at least every four years to identify trends and risks to the assets, fiscal position, and governments' ability to provide services that support living standards. Legislation also requires that a *Long-term Insights Briefing* is published at least every three years on policy options to address long-term trends and risks. In 2021, the Treasury combined its *Long-term Insights Briefing with the Statement on the Long-Term Fiscal Position,* to produce a report with a discussion of long-term fiscal sustainability and risks, including on the impacts of climate change and aging.

[26] Catalano, Forni, and Pezzolla (2019) show that spending on adaptation would lead to a lower debt burden in the longer term, compared to a scenario with lower adaptation spending.

"green" golden rules—whereby green public investments and possibly other types of spending (including subsidies) would be excluded from the deficit calculation—to protect green spending from fiscal consolidation efforts.[27] However, such rules would face considerable challenges in practice:

- Defining green spending and classifying green projects is incredibly challenging, increasing the risk of creative accounting ("greenwashing"). Most spending items can have a green component (for example, water, and sanitation) and countries have heterogenous definitions and procedures to define climate relevant activities across the public and private sectors (World Bank 2021).
- Setting rules that protect some green programs relative to others a priori could create the wrong incentives. If the rules carve out space for large public investment projects, it could lead to prioritize such programs even if there are better alternatives. This is especially relevant as there is still much uncertainty on the best policies to use and how solutions and technology will evolve over time.
- Excluding substantial parts of the budget risks undermining the fiscal rules' objective to promote fiscal sustainability. It would also increase their complexity making implementation and monitoring more difficult.
- Green rules would also undermine the budget process and a broader discussion of policies and programs vis-à-vis the government priorities (climate, aging, development) and financing constraints.

The solution to give greater attention to climate change will require changes in budget processes and more broadly in fiscal frameworks—and not by using green fiscal rules. Countries should develop comprehensive frameworks to address climate change and better integrate their climate priorities through green public financial management (PFM). This means gradually adapting existing PFM practices to make them environment and climate sensitive, by integration of a climate-friendly perspective into PFM practices, systems, and frameworks. Green budgeting means using the tools of budgetary policymaking to help achieve environmental goals, including through evaluating environmental impacts of budgetary and fiscal policies and assessing their coherence toward the delivery of national and international commitments. Green considerations were integrated into the budget process in the form of climate budgeting and "green tagging" starting only in the late 2000s (for example, Bangladesh, Nepal). More recently, several advanced economies have adopted ambitious green PFM practices (France in 2019), but green PFM remains underdeveloped in most countries (Gonguet and others 2021). Finally, fiscal policy will have to balance different priorities including climate, aging, the Sustainable Development Goals, and gender equality, with limited fiscal space. The budget process is the vehicle to prioritize resources most effectively across the different priorities.

Enhanced Role for Independent Fiscal Councils

The number of fiscal councils has been increasing with varying degree of independence and responsibilities, but important weaknesses remain. About half of fiscal councils in OECD countries assess the assumptions in government fiscal plans.[28] More than 40 percent of fiscal councils conduct analysis on economic and fiscal scenarios. Escape clauses have proved valuable in the aftermath of the pandemic but only 50 percent of fiscal councils are tasked to monitor the activation and the implementation of escape clauses in the fiscal frameworks. However, only 50 percent of countries with fiscal rules have established fiscal councils. More developed fiscal councils have additional mandates to assess scenarios and fiscal risks, the realism of governments' macro-fiscal projections, as well as the costing of governments' proposed policies (Canada, The Netherlands, the United Kingdom) but this ex-ante analysis has not been unique to advanced economies (Chile, Georgia).

[27] See Pekanov and Schratzenstaller (2020), Darvas and Wolf (2021), and Giavazzi and others (2021).
[28] See also OECD principles (OECD 2014) and cross-country experience (IMF 2013 and Davoodi and others 2022.)

Enhancing the role of fiscal councils to build credibility of the medium-term fiscal plans will be especially important in the enhanced rules-based fiscal frameworks. More flexibility allows governments to rapidly adjust to different circumstances; however, it increases the risk of loss of credibility if not well communicated or abused. Countries can benefit from establishing fiscal councils; where capacity constraints are an impediment, as in low-income countries, independent oversight committees focused on fewer core tasks can play an interim role while capacity is strengthened. Fiscal councils can play a key role in strengthening institutional safeguards, especially by providing independent forecasts, costing of measures, and risk assessments that are critical to calibrate fiscal anchors and plans. These can reduce overoptimism in fiscal plans and biases associated with political cycles. Specifically:

- *Mandates.* In addition to broad oversight, such as the ex-ante assessment of the macro-fiscal plans and an ex-post evaluation of fiscal performance, fiscal councils' mandates could be extended to provide independent forecasts on key macro variables, assessment of the budgetary impact of new measures or reforms, and risk assessments to be used as inputs for medium-term plans and budgets.
- *Access to timely information.* A determinant of success for a fiscal council is receiving the necessary data for its analysis (Beetsma and others 2018). Full access to all relevant information at no cost and in a timely manner from government and public entities should be guaranteed in the legislation.
- *Operational independence and capacity*. Fiscal councils need sufficient budget resources that are commensurate to its remit and are not subject to political interference. Budgets can be cut, and mandates put in abeyance or changed. To avoid those drawbacks, legislation can be included to secure its resources and enshrine its operational independence.
- *Accountability, transparency, and communications.* The independent fiscal council should be accountable to the broader public and Parliament through peer-reviews, regular hearings before parliament, timely public release of its reports, and ex-post assessments of the fulfillment of the fiscal council mandate and the efficient use of resources by the supreme audit institution. In emerging markets and low-income countries with capacity constraints, building fiscal councils will take time. The priority should be given to increasing transparency in reporting, improving macro-fiscal projections as well as quality and timeliness of fiscal statistics (Allen and others 2017).

Conclusion

Countries should seize the opportunity to upgrade their medium-term fiscal frameworks as they return to fiscal rules. As countries recover from the pandemic, the macroeconomic landscape has shifted. Governments are faced with difficult trade-offs as concerns about debt sustainability grow and pressures mount to address both immediate needs, such as the significant cost-of-living shock due to rising energy and food prices, and long-term challenges. Credible medium-term fiscal plans can help manage the trade-offs better. Large deviations from pre-pandemic fiscal rules, and longstanding weaknesses in fiscal frameworks, imply that it will be difficult—and undesirable for many countries—to commit to a return to the old rules. There is an opportunity to upgrade fiscal frameworks, building on the lessons from recent years, to prepare for future crises and promote a consistent mix of fiscal and monetary policies.

A medium-term fiscal framework that incorporates standards, rules, and strengthened institutions will achieve a better balance of flexibility and credibility. Such approach involves significant upgrades in fiscal institutions in many countries, including by anchoring fiscal policy around medium-term fiscal plans; strengthening risk management; and enhancing checks and balances through a bigger role for independent fiscal institutions and greater transparency. Ultimately, it requires building wide public support for sound public finances based on a set of principles and rules to guide the budget process.

Annex 1. Economic Costs of Overoptimistic Projections

This annex provides the data descriptions and technical details that underlie the empirical analyses of Box 1 on the costs of overoptimism of macroeconomic and fiscal projections.

Data Description. The data set is based on a sample of 43 countries, comprising of 23 advanced economies and 20 emerging market countries, during 2000–19. Official projections on growth and fiscal balance are collected from countries' official annual budget documents, as well Bloomberg Finance L.P. as mid-year budget reviews or revised budgets when available (as in Hadzi-Vaskov and others 2021, End and Hong 2022). For private forecasts, the Consensus Economics is the main data source, complemented by Bloomberg. Most macroeconomic control variables are from the IMF World Economic Outlook data base (for example, real GDP growth, inflation, public debt, overall and primary fiscal balance outcomes). Financial data on sovereign spreads are from Bloomberg Finance L.P. and Refinitiv Datastream. For the variables on the degree of economic uncertainties and market volatility, the World Uncertainty Index (WUI) by Ahir and others (2020) and CBOE Volatility Index (VIX) are used. Variables related to fiscal rules and institutions are the IMF database on fiscal rules and fiscal councils.

Perils of Overoptimism. The degree of optimism in fiscal planning, or fiscal slippages, is proxied by errors made in official forecast of fiscal balances, measured as the difference between official projections and fiscal balance outcomes. The patterns of fiscal slippages (for example, how it relates to past forecast errors and growth surprises) are examined using a panel regression specification:

$$b_{i,t|t-1} - b_{i,t} = \beta^1\left(b_{i,t-1|t-2} - b_{i,t-1}\right) + \beta^2\left(g_{i,t|t-1} - g_{i,t}\right) + \gamma \cdot Controls + \varepsilon_{i,t},$$

where the dependent variable $b_{t|t-1} - b_t$ denotes fiscal slippages (b_t for ex-post fiscal balance outcomes in year t and $b_{t|t-1}$ for one-year ahead projections for the year t fiscal balance as announced in the budget document which is usually issued a few months ahead of the beginning of the year), $g_{i,t|t-1} - g_{i,t}$ denotes errors in growth forecasts (growth surprises), and $Controls$ include actual fiscal balance (revenue minus expenditures) from the last year, the level of public debts, the WUI to capture the role of uncertainties, and indicators for the IMF program review and the upcoming election $(t+1)$, fiscal rules and institutions, as well as year- and country-fixed effects. The results (Table 1.1, column (1)–(5)) reaffirms that fiscal slippages are persistent with a high autocorrelation coefficient. Fiscal slippages are also positively correlated with growth surprises, indicating that overly optimistic macroeconomic projections are a major source of fiscal slippages. Finally, it shows that fiscal slippages tend to be smaller on average in countries with fiscal rules, especially with expenditure rules, as well as those with fiscal councils.

The relationship between fiscal slippages and debt accumulation is examined using a panel regression specification:

$$Debt_{i,t+3} - Debt_{i,t} = \beta^1 Debt_{i,t-1} + \beta^2 FE_{i,t\sim t+3} + \beta^3\ balance_{i,t\sim t+3} + \gamma \cdot Controls + \varepsilon_{i,t},$$

where $Debt_{i,t+3} - Debt_{i,t}$ is the changes in the public debt levels over the medium-term (three-year horizon), $Avg.FE_{i,t\sim t+3}$ denotes the average fiscal slippages over the same periods, $Avg.\ balance_{i,t\sim t+3}$ denotes fiscal balances, and $Controls$ includes the initial level of debts ($Debt_{i,t-1}$), average growth, the WUI over the same periods, as well as country and year fixed effects depending on specifications. The result indicates that fiscal slippages are associated with faster debt accumulation over the medium-term—over and above the level which a similar fiscal balance path would have delivered without slippages (Table 1.1, column (6)). Such faster debt

accumulation may relate to higher borrowing costs. A panel regression analysis shows that larger fiscal slippages are associated with higher sovereign spreads (vis-à-vis the US 10-year sovereign yields) (Annex Table 1.1, column (7)).

Annex Table 1.1. The Perils of Overoptimism

	(1)	(2)	(3)	(4)	(5)		(6)	(7)
	Fiscal slippages							
Dependent variable:	(= budgetary plans - outcomes)						Δ.Debt (3 yrs.) 1/	Sovereig spreads 2
Lag. Dependent variable	0.836***	0.796***	0.785***	0.826***	0.823***	Lag. Dependent variable		0.967***
	(0.0181)	(0.0227)	(0.0212)	(0.0185)	(0.0185)			(0.0116)
Negative growth surprises	0.142***	0.140***	0.337***	0.142***	0.142***	Fiscal slippages	1.468***	1.576*
	(0.0165)	(0.0195)	(0.0319)	(0.0164)	(0.0164)		(0.329)	(0.669)
Budgetary plan (t-1)	0.168***	0.174***	0.166***	0.181***	0.172***			
	(0.0228)	(0.0268)	(0.0250)	(0.0232)	(0.0227)			
Debt (t-1)	0.00300*	0.00210	0.00281	0.00223	0.00298*	Debt (t-1)	-0.354***	-0.0565
	(0.00121)	(0.00184)	(0.00171)	(0.00124)	(0.00120)		(0.0302)	(0.112)
WUI	-0.731	-0.0507	-0.829	-0.236	0.881	Interest rates	0.185	-2.147
	(1.230)	(1.410)	(1.315)	(1.240)	(1.332)		(0.981)	(2.883)
Election	0.139	0.134	0.0615	0.128	0.129	Primary balance	2.573***	1.270
	(0.0982)	(0.117)	(0.109)	(0.0978)	(0.0975)		(0.298)	(0.695)
IMF program review	0.344	0.656*	0.811**	0.376	0.431	Growth	1.605***	-0.0479
	(0.292)	(0.294)	(0.274)	(0.291)	(0.291)		(0.281)	(0.637)
Fiscal council (FC)		-0.445***	-0.240*			Inflation	-0.926	1.987*
		(0.128)	(0.122)				(0.483)	(0.930)
FC X growth surprises			0.279***			Uncertainty	60.83***	1.564***
			(0.0371)				(14.93)	(0.316)
FR: BBR				-0.180*				
				(0.0718)				
FR: ER					-0.135**			
					(0.0446)			
Constant	Y	Y	Y	Y	Y		Y	Y
Country FE	Y	N	N	N	N		Y	Y
Year FE	Y	N	N	N	N		Y	Y
N	502	360	360	502	502		371	480
R2_w	0.828	0.808	0.835	0.831	0.831		0.664	0.980
R2_b	0.917	0.952	0.964	0.892	0.903		0.393	0.997
R2_o	0.852	0.847	0.869	0.854	0.855		0.484	0.987

Source: _____.

Note: Panel regressions using a sample of 43 countries during 2000–19. The variable "fiscal slippages" is calculated as the difference between the budgetary plans for year *t* from the budget in *t* – 1 and actual fiscal outcome at *t*. Negative (positive) values of the variable imply over-performance (fiscal slippages). Column (1) – (5) shows the results of the regression analysis examining the patterns of fiscal slippages (fiscal outcomes falling short of their one-year ahead projections or targets); Column (6) and (7) examine how fiscal slippages relate to debt accumulation over the medium-term (three-year horizon) and sovereign spreads, respectively.

[1] Explanatory variables for the regression on medium-term debt accumulation are expressed as average over the medium term (three-year horizon).

[2] The regression in column (7) is run on the months during which new budget announcements were made.

Annex 2. Safe Assets and Debt Limits

Model and calibration. The model is based on Mian, Straub, and Sufi (2022) to illustrate how much a government can borrow when government bonds have safe asset features, often referred to as "convenience yields." The model runs in continuous time and is deterministic. There are three economic agents: a government, a representative household, and a monetary authority. The government issues government debt, spends, and raises lump-sum taxes. The households consume and draw convenience yields from holding government bonds. The monetary authority follows an inflation-targeting rule. There is a zero lower bound (ZLB) on the nominal interest rate, but when the ZLB is not binding, monetary policy is active in stabilizing inflation and economic activity.

The model has two key features. First, the low neutral interest rate arises as there is a demand of government bonds due to convenience yields. Sufficiently low levels of neutral interest rate generate a negative interest-growth differential. Second, there is an endogenous relationship between interest rate and public debt, where interest rates increase with the level of public debt, supported by empirical evidence that the demand curve for government bond is downward sloping (Krishnamurthy and Vissing-Jorgensen, 2012, and Lian, Presbitero, and Wiriadinata 2020).

The set of sustainable combinations of primary deficit and debt (as a percent of GDP) is derived based on the following relationship:

$$z(b) = \big(G(b) - R(b)\big)b$$

where $z(b)$ is the level of primary deficit that government is required to choose for the economy to stabilize debt at b, $G(b)$ and $R(b)$ are equilibrium growth rate and interest rate depending on the debt-to-GDP. When the ZLB is not binding, monetary policy is used to keep the economy at equilibrium, implying that the interest rate is equal to the natural rate $R(b) = R^*(b)$ and the nominal growth rate is equal to nominal trend growth $G(b) = G^*$.

This relationship can be illustrated via a deficit-debt diagram (Figure 6).[1] The peak of the curve corresponds to the debt level consistent with the maximum sustainable primary deficit, given the economy's nominal potential growth and forces driving the neutral rate. Different regions of the diagram imply different deficit-debt combinations to maintain fiscal sustainability as follows:

- *A "free-lunch" zone* (on the left side of point F): the region to the left of the peak. Here, the level of debt is sufficiently low. Primary deficits can be increased without raising concerns of debt sustainability. Once the economy moves to the right side of the peak (on the right side of point F), an increase in debt implies that primary deficits need to decline to maintain sustainability.
- *Flipping point* (Point F*, intersection between the curve and the horizontal axis): when the debt becomes higher than the *flipping point*,[2] a primary surplus is required to ensure a stable debt-to-GDP ratio.
- Based on the maximum sustainable primary surplus, a maximum *debt limit* is endogenously determined (Point LL, the intersection between the maximum sustainable surplus line and the diagram); a debt level above this level is unsustainable.

[1] Alternative model settings, such as Reis (2021), Mehrotra and Sergeyev (2021), and Blanchard (2019), can be also used to obtain this diagram.

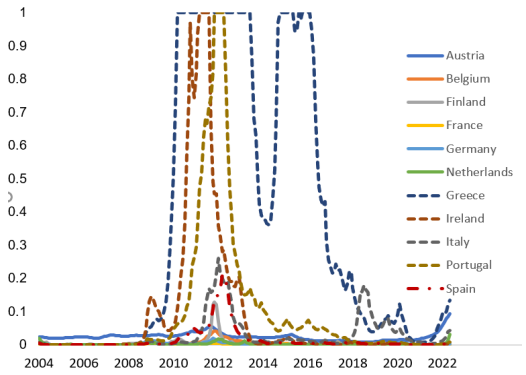
[2] See Mehrotra and Sergeyev (2021) for more discussion on the dynamics around the flipping points.

Calibration. The baseline model is calibrated to match the data for advanced economies (AEs) and emerging markets (EMs) as follows:

- The illustration for mid-2000s scenario uses the sample from 2000 to 2009, and the pre-pandemic scenario uses the sample from 2019. Assumptions used for a typical AE and EM are calculated as the average the variables weighted by economic size.
- For the pre-pandemic period scenario (respectively, mid-2000s scenario), calibrations for a typical AE assumes an initial level of debt of 100 percent (75 percent) of GDP and a real long-term trend growth of 1.5 percent (2.5 percent), based on the WEO database. The equilibrium inflation rate is assumed to be 2 percent, in line with the inflation targets in most AEs. The equilibrium nominal interest rate is set at 2 percent in the pre-pandemic scenario and 4 percent in the mid-2000s scenario, in line with the literature (Brand and others 2018; Holston and others (2017); Del Negro and others (2019)).
- For a typical EM, the calibration for the pre-pandemic scenario (respectively, mid-2000s scenario) assumes an initial level of debt of 50 percent (40 percent) of GDP, a real long-term trend growth of 3.5 percent (6 percent), and a long-term inflation rate of 4 percent (6 percent).[3] The equilibrium nominal interest rate is calibrated at 6.5 percent (11.5 percent) in line with Ruch (2021) and Alloza and others (2021).
- In all cases, the elasticity of debt-to-GDP ratio to interest rates is assumed to be 0.017, implying that a 10 percent increase in the debt-to-GDP ratio leads the interest rate to increase by 17 basis points in line with Mian, Straub, and Sufi (2022). The authors also conduct sensitivity analysis with different elasticities as these can differ significantly across countries.

Annex Figure 2.1. shows a variation of long-term interest volatility across advanced economies in the euro area, suggesting the debt limits even among advanced economies group will be very different. A simple empirical analysis of 23 AEs and 25 EMs demonstrates a positive correlation between the central bank independence and lower sovereign borrowing costs (Annex Table 2.2).

Annex Figure 2.1. Euro Area's Long-Term Interest Rate Volatility



Sources: Organisation for Economic Co-operation and Development; and IMF staff estimates

Note: The figure shows the time-varying volatility of long-term interest rate estimated from a vector autoregressive model with stochastic volatility including long-term interest rates for core (Austria, Belgium, Finland, France, Germany, and The Netherlands) and periphery (Greece, Ireland, Italy, Portugal, Spain) countries in the euro area. For visualization purpose, the value greater than 1 is set at 1.

Annex Table 2.2. Effect of Central Bank Independence on Effective Interest Rate

	Dependent variable:	
	Effective Interest Rates	
	AEs	EMs
	(1)	(2)
avg_of_indexes	-2.512**	-2.766*
	(0.999)	(1.573)
factor(decade)2010s	-1.867***	-1.570*
	(0.613)	(0.836)
factor(decade)80s	3.315***	-1.332
	(0.682)	(1.014)
factor(decade)90s	2.209***	0.828
	(0.635)	(0.859)
Constant	7.077***	9.191***
	(0.843)	(1.196)
Observations	87	90
R^2	0.603	0.141
Adjusted R^2	0.583	0.101
Residual Std. Error	1.985 (df = 82)	2.955 (df = 85)
F Statistic	31.116*** (df = 4; 82)	3.489** (df = 4; 85)
	*p<0.1; **p<0.05; ***p<0.01	

Source: IMF staff estimates.

Note: OLS regression of 23 advanced economies (AEs) and 25 emerging market economies (EMs) from 1980 to 2017. The variable, "avg_of_indexes," is the average of indexes of central bank independence over each decade (Romelli 2018). Time dummy for each decade is included in each regression.

[3] Source: WEO database. The potential growth rate and equilibrium inflation rate are obtained by via Hodrick-Prescott filtering.

Annex 3. Fiscal Rules and Countercyclical Fiscal Policy in Recessions

This annex provides novel estimates of whether fiscal rules have limited, or increased, fiscal space for countries to conduct countercyclical fiscal policy in recessions. It estimates the dynamic causal effect of fiscal rules on real government spending—and current and capital spending subcomponents—in response to recessions, for an unbalanced panel of 71 countries (22 advanced economies and 49 emerging market economies) during 1985–2019.[1] The analysis focuses on government spending since it better reflects discretionary fiscal policy (than revenues or the overall deficit).[2] Compared to the literature, it makes strong attempts to deal with endogeneity, of both the economic cycle and fiscal rules adoption, by employing a difference-in-difference estimation, and showing robustness to a multi-treatment effect methodology that jointly models the probability of entering a recession and adopting a fiscal rule.

Difference-in-difference estimation. Panel local projections are estimated with two-way (country and time) fixed effects (see Ardanaz and others 2021), using the following regression specification:

$$log\ y_{t+h} - log\ y_{t-1} = \alpha_i^h + \tau_t^h + \beta^h Recession_{it} + \gamma^h Rule_{it} + \lambda^h Recession_{it} * Rule_{it} + \sum_{p=0}^{P} \delta_p^h X_{i,t-p} + \varepsilon_{i,t+h}$$

where y_{t+h} denotes (detrended) real government spending for forecast horizons *h* taking values –1 up to 4 years ahead (h=0 is the year of the recession shock). The specification controls for lags of the dependent variable, of the rules (due to serial correlation), and of GDP growth, and clusters standard errors at the country level. Results can be interpreted as a difference-in-difference framework that identifies the effect of recessions on real government spending in countries with versus without fiscal rules.[3]

The authors also test for robustness of baseline results using a multi-treatment effect estimation approach, which jointly models the probability of entering a recession and adopting a rule and uses inverse probability weighting (IPW) to correct for endogeneity (Imbens and Wooldridge 2009, Caselli and Wingender 2021).[4] In the first stage, the joint treatment probability of being in a recession and having a fiscal rule is modeled as a function of its own lag, a time trend, and lagged values of GDP growth and real government expenditure growth. The average treatment effect is estimated in a second stage, taking into account reweighted observations. This is then combined with local projection methods to study dynamic responses, as in Jordà and Taylor (2016).

[1] Recessions are defined as contiguous blocks of years with negative real GDP growth; they are assumed to hit in period 0, such that period –1 is pre-recession. Impulse responses measure cumulative changes in log real government spending relative to period –1. Real values of spending are obtained by deflating the data by the GDP deflator and the authors also detrend the data by a fourth-order time polynomial.

[2] Among spending categories, several studies suggest investment to be more procyclical since countries under pressure to reduce their budget deficits find it politically easier to cut public investment than current outlays to comply with fiscal rules, leading countries to over-compress investment during bad times in particular (Blanchard and Giavazzi 2004, Ardanaz and Izquierdo 2017).

[3] Since most of the variation in fiscal rules adoption comes through time, this feature is exploited by comparing rulers and no-rulers in the years post recessions (that is, recession is the treatment and rule is the interacting variable). The main assumption is that outcomes in treated and untreated countries would follow a common path through time in the absence of the treatment effect.

[4] In the first stage, a multinomial logit model is used to estimate the probability of each treatment level as a function of all relevant observable covariates. In the second stage, the predicted probabilities are used to reweight the observations in the control group. The objective of the re-weighting scheme is to mimic the setting of a randomized control trial where assignment of the treatment is random, thereby making treatment assignment independent of potential outcomes. Observations in the control group that have been estimated to be more likely to adopt the treatment receive a greater weight.

Data. Data are from the IMF World Economic Outlook database. Recession dummies are computed with Harding and Pagan's (2002) business cycle dating algorithm for annual data, where recessions are defined as contiguous blocks of years with negative real GDP growth, and expansions and recoveries based on the same algorithm. In robustness checks the authors also include lagged values of additional macroeconomic control variables: the debt-to-GDP ratio, exchange rate appreciation, CPI inflation, and income per capita or demographics (proxied by the old-age dependency ratio). The authors also conduct sensitivity analysis by considering real government consumption and gross fixed capital formation (GFCF), as substitutes for current and capital spending, respectively, obtained from the WEO database, extended with data from the OECD.

The analysis considers heterogeneous effects of adopting fiscal rules with different features and in different country circumstances. An advantage of the diff-in-diff approach is that it allows for studying heterogeneity analysis by introducing interaction terms. The analysis explores various aspects of fiscal rule design and structural factors that can affect the cyclicality of fiscal policy, by considering design elements such as the flexibility[5] of fiscal rules, and studies the role played by fiscal space.

Results

Novel panel local projection estimates reveal that, on average, countries entering a recession with a fiscal rule do not conduct more procyclical fiscal policies than countries without a rule in place. On average, both countries with and without rules cut government spending following a recession (Annex Figure 3.1). Countries cut both current and capital spending, with no difference between rulers and non-rulers.

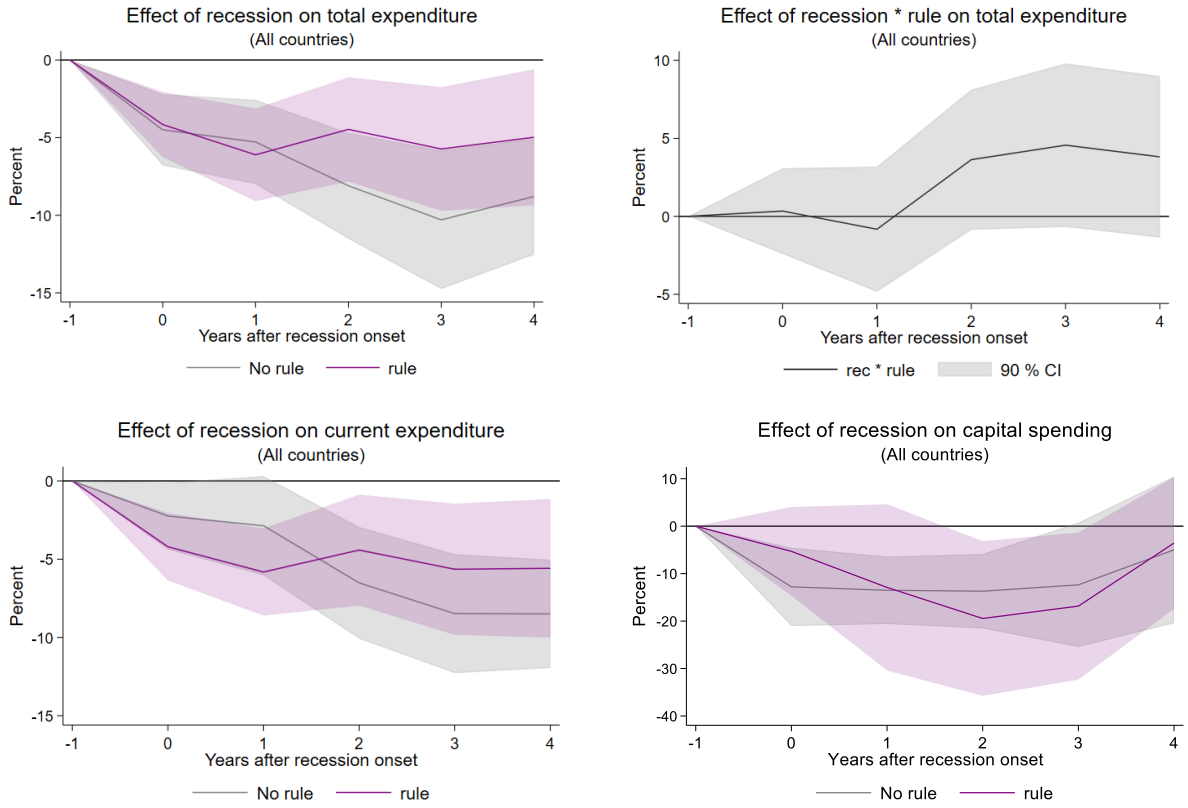
Results are robust to various sensitivity checks. Results are robust to extending the sample to 2020 to include the pandemic response and to employing a multi-treatment effect methodology that jointly models the probability of entering a recession and adopting a rule, to account for endogeneity in fiscal rule adoption.[6] Results are also robust to considering real government consumption as an alternative to current spending, and gross fixed capital formation as an alternative to capital spending (Annex Figure 3.2). On average, rules do not seem to constrain countries' fiscal policy response even in small recessions and downturns, defined as episodes where real GDP growth is above zero but at least 2 percentage points below the previous year (Annex Figure 3.3).

Countries with more fiscal space and more flexible rules tend to have a more countercyclical policy response. Fiscal space is shown to matter for rulers, as evidenced by countries with lower pre-recession debt burdens spending relatively more during the recovery period (Annex Figure 3.4). Countries with a higher pre-recession deficit relative to the rule limit, tend to constrain spending growth, whereas debt levels more persistently exceed the limit (Annex Figure 3.5), consistent with evidence in Davoodi and others (2022). Among countries with fiscal rules, those with flexible features—such as cyclically adjusted targets and well-specified escape clauses—are also, on average, able to conduct a less procyclical fiscal policy response (Annex Figure 3.6). Compared to not having a rule, countries with flexible rules are able to maintain capital spending levels when hit by recessions and constrain government spending by less in the recovery period starting two years after the recession (Annex Figure 3.7).

[5] The authors account for difference in design for rules that focus on cyclically adjusted targets, have well-specified escape clauses, or exempt investment. As in Guerguil, Mandon, and Tapsoba (2017) and Ardanaz and others (2021), the authors construct a dummy equaling 1 if a flexible rule (with at least one of these features) is in place at time *t*, and 0 if it is a rigid rule.

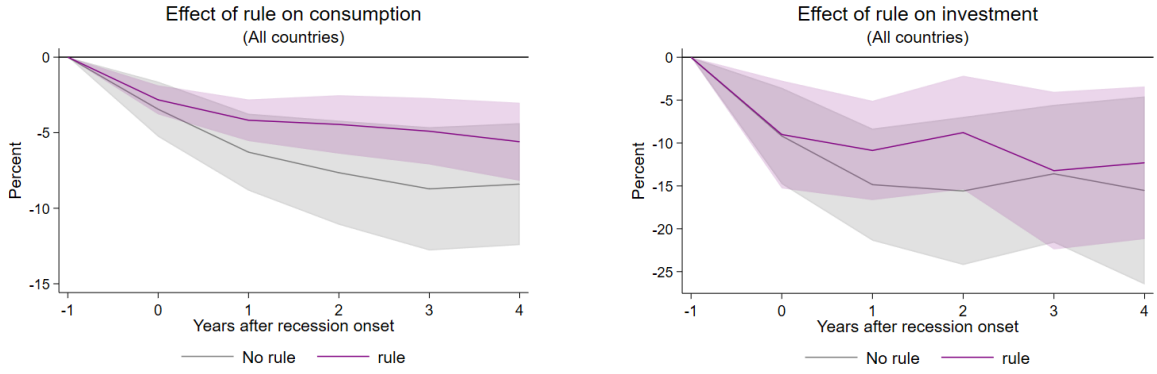
[6] Results are available from the authors upon request.

Annex Figure 3.1. Impact of Fiscal Rule on Governments' Total Spending and Capital Spending Subcomponent in Response to Recessions



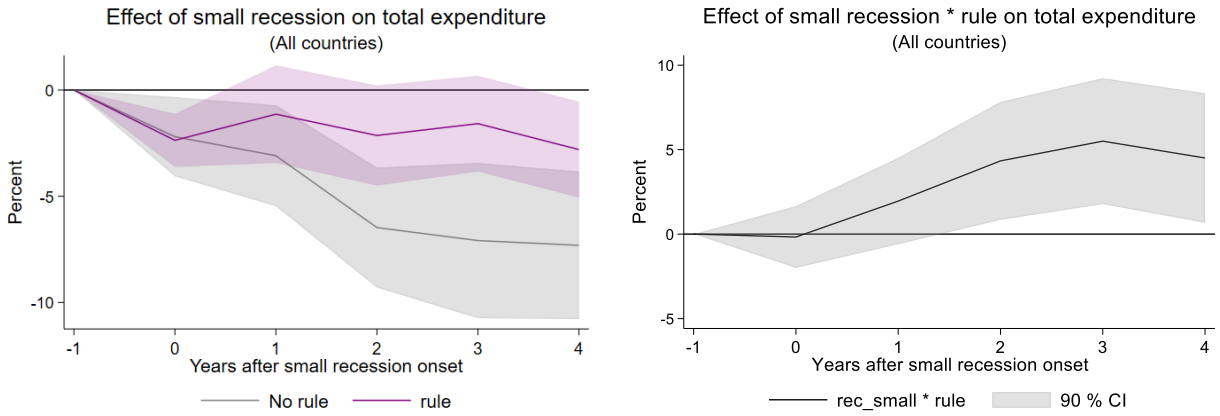
Source: IMF staff estimates.
Note: This figure reports the cumulative effect of a recession on the outcome variable for countries with vs without fiscal rules. The error bands correspond to 90 percent confidence intervals.

Annex Figure 3.2. Impact of Recession on Real Government Consumption and Investment



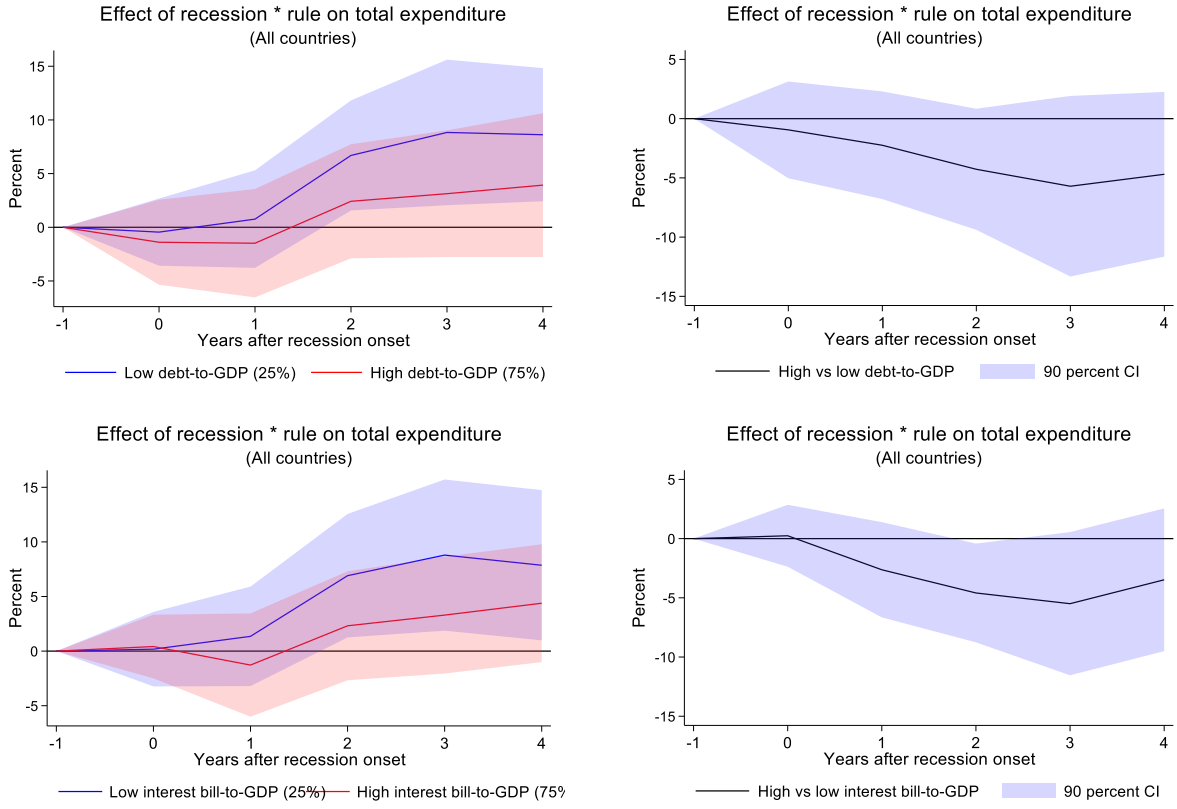
Source: IMF staff estimates.
Note: This figure reports the cumulative effect of a recession on the outcome variable for countries with versus without fiscal rules. The error bands correspond to 90 percent confidence intervals.

Annex Figure 3.3. Impact of Recession on Total Real Government Spending—Small Recessions



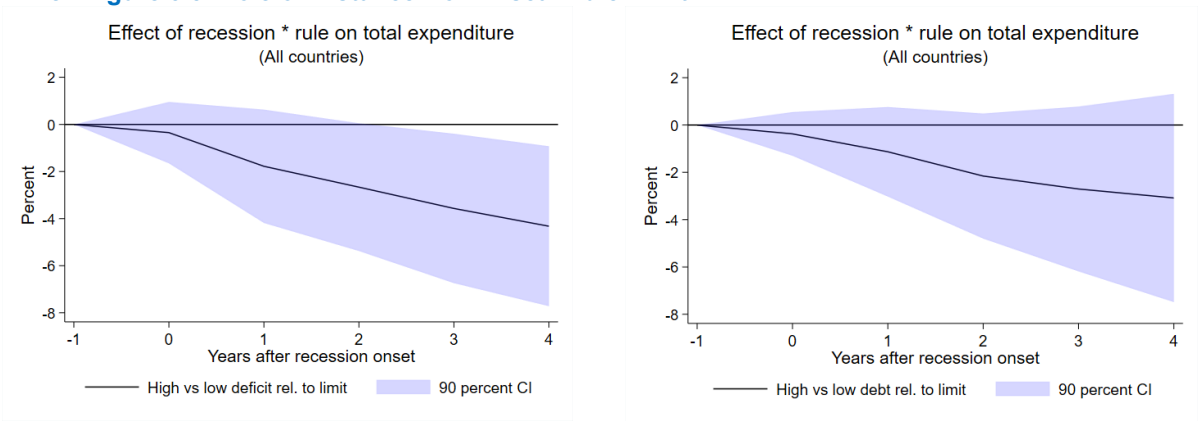
Source: IMF staff estimates.
Note: This figure reports the cumulative effect of a small recession on the outcome variable for countries with versus without fiscal rules. The error bands correspond to 90 percent confidence intervals.

Annex Figure 3.4. Role of Debt Levels



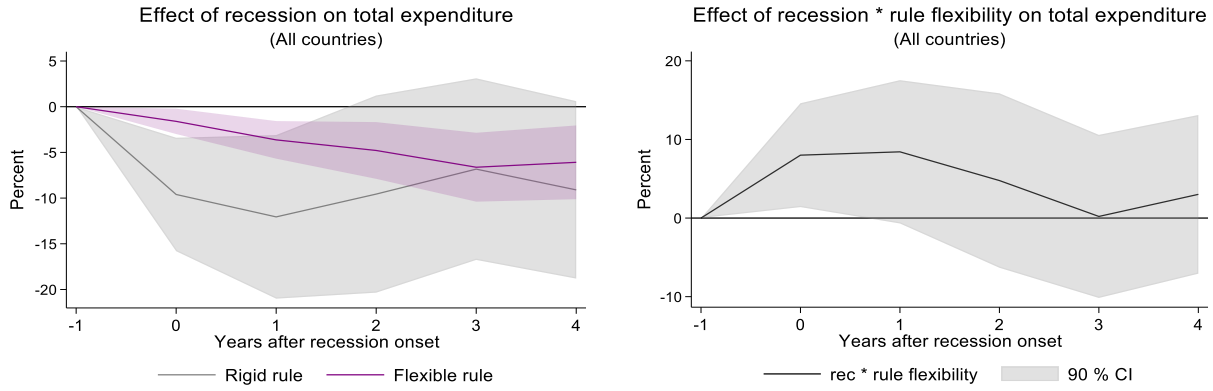
Source: IMF staff estimates.
Note: This figure reports the cumulative effect of a recession on the outcome variable for countries with fiscal rules and high versus low debt levels and interest bills (that is, 75th vs. 25th percentiles), relative to countries without fiscal rules. The error bands correspond to 90 percent confidence intervals (CI).

Annex Figure 3.5. Role of Distance from Fiscal Rule Limit



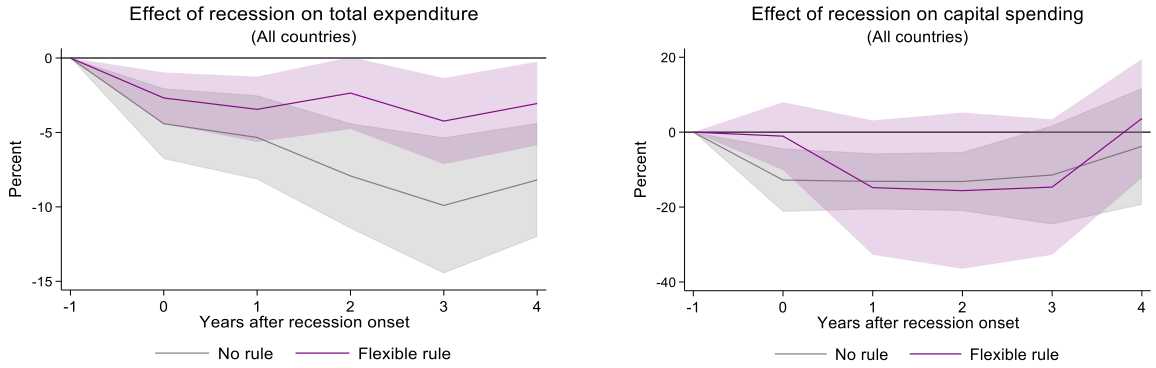
Source: IMF staff estimates.
Note: The figure reports the cumulative effect of a recession on the outcome variable for countries with fiscal rules and high versus low debt and deficit levels compared to the rule limits (75 vs. 25 percentiles), relative to countries without fiscal rules. 90 percent confidence intervals (CI) bands.

Annex Figure 3.6. Role of Flexible vs. Rigid Rules



Source: IMF staff estimates.
Note: This figure reports the cumulative effect of a recession on the outcome variable, for countries with flexible versus rigid fiscal rules. The error bands correspond to 90 percent confidence intervals (CI).

Annex Figure 3.7. Role of Flexible Rules vs. No Rules



Source: IMF staff estimates.
Note: The figure reports the cumulative effect of a recession on expenditures for countries with flexible rules versus no fiscal rules.

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