CHAPTER 1

PUTTING A LID ON PUBLIC DEBT

Introduction

Public debt levels are elevated around the world and expected to exceed $100 trillion in 2024. After a decline in 2021–22, global public debt edged up again in 2023 and is projected to approach 100 percent of GDP by 2030, with the world's two largest economies, *China* and the *United States*, largely driving the increase. Although debt is projected to stabilize or decline by 2029 in about two-thirds of the world's countries, it remains higher than before the pandemic (Figure 1.1).[1]

Significant upside risks to this baseline outlook imply that debt levels could be even higher than currently projected. The political discourse on fiscal issues has increasingly tilted toward higher government spending over the last three decades (Cao, Dabla-Norris, and Di Gregorio 2024). Fiscal policy uncertainty has increased (Hong, Ke, and Nguyen 2024). Further, mounting spending pressures (for example, for the green transition, defense, costly industrial policies, population aging, and UN Sustainable Development Goals)—not fully accounted for in current debt projections—are likely to lead to a further buildup of public debt.

As it is, debt projections are subject to an optimism bias. Past experience shows that they tend to systematically underestimate debt levels: realized debt-to-GDP ratios three years ahead are higher than projected by 6 percentage points of GDP, on average (Figure 1.2). Forecast errors tend to be even larger in cases in which debt is initially projected to decline (Estefania-Flores and others 2023).

Unidentified debt—that is, the change in government debt that is not explained by budgetary deficits, interest-growth differentials, and exchange rate movements—is large and often a key driver of the debt buildups in emerging market and developing economies (Comelli and others 2023; Schuster and others 2024). Materialization of these upside risks to already high debt levels in many parts of the world poses significant concerns.

High debt reduces fiscal space and the governments' ability to respond to economic downturns, crowds out necessary growth-enhancing investments, and raises the risk of sovereign distress (Brunnermeier and others 2016; Brunnermeier and Reis 2023; Mitchener and Tresbesch 2023; Farhi and Tirole 2018). Notably, sustained debt buildups can raise the probability of debt distress or broader financial crisis (Kose and others 2021). Even in countries where debt is projected to decline, planned fiscal adjustments remain uncertain, and public debt is expected to remain well above prepandemic levels. Further, these countries are exposed to adverse real and financial spillovers from elevated debt and uncertainty surrounding fiscal policies in systemically important economies.[2]

Against this backdrop, this chapter answers the following questions:

1. What is the distribution of risks around baseline projections for public debt?
2. How should countries that need to get public debt under control conduct fiscal policy? How should they design fiscal adjustments—in terms of size, pace, and composition—to strengthen debt sustainability while limiting their adverse impact on output and income distribution?
3. How can governments tackle unidentified debt?

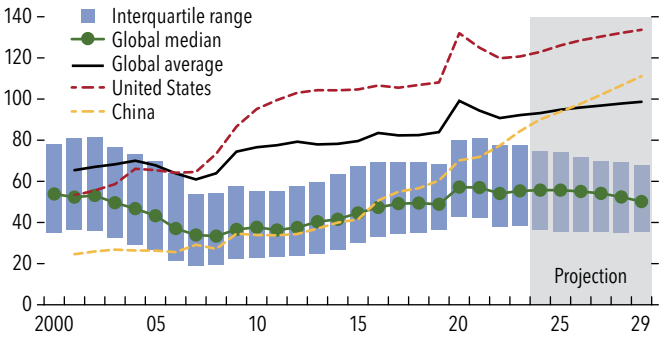
The chapter employs new data and modeling techniques to answer these questions. These are the key findings:

- *Distribution of risks around the baseline public debt projections.* A novel unified "debt-at-risk" framework is used to assess the risks surrounding baseline debt projections and how they vary across countries and over time. The analysis suggests that changes in

[1]Decomposition of government debt ratios for 2024–29 into their macroeconomic drivers shows that interest-growth differentials are projected to continue to support debt reduction on average across country groups, but sustained primary deficits and stock-flow adjustments will weigh on debt. However, debt dynamics vary across countries. The expected debt stabilization for many economies, excluding *China* and the *United States*, is premised on still-favorable interest-growth differentials and planned fiscal restraint. For *China* and the *United States*, sizable fiscal deficits are driving the increase in debt.

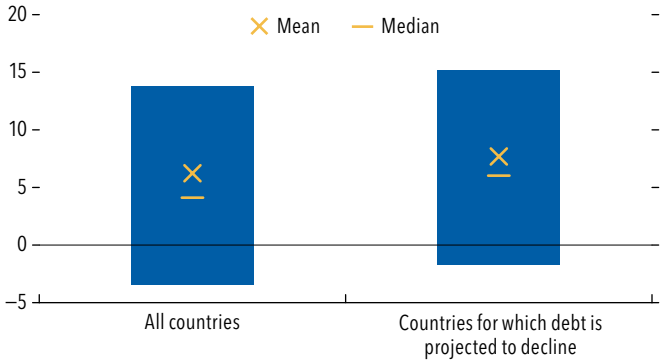
[2]Indeed, evidence suggests that uncertainty surrounding US fiscal policy drives the global financial cycle in an important way, even after controlling for US monetary policy shocks (Hong, Ke, and Nguyen 2024).

Figure 1.1. Public Debt-to-GDP Ratio, 2000–29
(Percent of GDP)



Source: IMF, World Economic Outlook database.

Figure 1.2. Three-Year Forecast Errors of Public Debt Projections, 1990–2021
(Percent of GDP)



Source: Estefania-Flores and others 2023.

Note: Forecast errors are defined as the projected debt-to-GDP ratio relative to the realized outcome for each country. The bars show the interquartile range at the three-year horizon.

economic, financial, and political conditions can shift the distribution of future debt-to-GDP ratios. Global debt-at-risk, defined as the level of future debt in an extreme adverse scenario, is estimated to be nearly 20 percentage points of GDP higher three years ahead than current *World Economic Outlook* projections. High current debt levels amplify the effects of weaker economic growth and tighter financial conditions on debt-at-risk. Global factors, which correlate with US sovereign yield volatility and US fiscal and monetary policy uncertainty, increasingly drive the fluctuations in government borrowing costs across countries. Unidentified debt, another important risk for the debt outlook, has been historically large averaging around 1.0–1.5 percent of GDP per year, and up to 7 percentage points of GDP in the wake of financial system stress. This stems from the materialization of contingent liabilities and fiscal risks as well as from arrears.

- *Fiscal policy to get debt under control.* Our analysis shows that current fiscal adjustment plans fall short of what is needed to stabilize or reduce debt with high probability for many countries. Cumulative adjustments will need to be 3.0–4.5 percent of GDP on average over the medium term to stabilize (or reduce) debt at a high probability. The magnitude of adjustment needed in most countries is greater than what is currently projected and by historical standards for many countries, especially in those where debt is not projected to stabilize.

  New analysis highlights how fiscal instruments have a differential impact on different households and thus entail varying trade-offs between output and inequality. A well-designed adjustment—combining both expenditure and revenue measures—can significantly mitigate the adverse impacts on both output and inequality and is more likely to be socially acceptable. Key elements of a well-designed adjustment vary across countries, but the pace of adjustment should be gradual and sustained to strike a balance between fiscal risks and the strength of private demand. For countries with benign debt outlooks, optimizing fiscal space while maintaining debt sustainability is a priority.

  Strengthening fiscal governance is critical to limit unidentified debt. Greater budget transparency and compliance with fiscal rules—key elements of sound public finances—are found to significantly mitigate the manifestation of unidentified debt during periods of financial stress.

How Are Risks Surrounding Public Debt Projections Distributed?

Debt forecasts, like other macroeconomic projections, typically reflect average estimates of the future debt path in an economy. However, understanding the uncertainty surrounding debt dynamics requires quantifying both downside and upside risks to the forecast and monitoring their evolution over time. This section

provides a unified framework for quantifying the risks surrounding debt projections and zooms in on two factors that are salient for debt risks: sovereign bond yields and unidentified debt.

Debt-at-Risk Framework

This section introduces a novel debt-at-risk framework for assessing the role of economic, financial, and political factors in driving debt dynamics. The analysis builds on and advances the "growth-at-risk" methodology (Adrian, Boyarchenko, and Giannone 2019; Adrian and others 2022), examining the dynamics of the global debt distribution over a projection horizon of one to five years (Online Annex 1.1).[3] The approach augments and complements existing tools for examining debt risks by first going beyond the proximate drivers of debt (interest-growth differentials and primary balances) to investigate salient underlying factors—such as financial stress or increased uncertainty regarding policies—that affect government debt and its proximate drivers.[4] Second, it assesses whether these factors have asymmetric or nonlinear effects on the future distribution of debt-to-GDP. The analysis helps policymakers gauge how debt could rise in a highly adverse scenario and provides the following insights:

- *Observable financial, political, and economic conditions predict debt risks, with impacts varying depending on the time horizon.* Estimates of debt-at-risk—defined as the 95th quantile of projected debt—are obtained from panel quantile regressions of future debt-to-GDP ratios on contemporaneous values of the variables of interest (Machado and Santos Silva 2019; Adrian and others 2022).[5] The analysis is based on a sample of 74 advanced economies and emerging market and developing economies accounting for more than 90 percent of global government debt. Figure 1.3 shows that adverse financial and political developments are consistently associated with higher debt risks up to a forecast horizon of three years.[6] In particular, tighter financial conditions disproportionately affect the right tail of the distribution of future debt (red bars in Figure 1.3, panel 1), with the strongest effects seen over a three-year horizon.[7] For example, a significant tightening in financial conditions—like the one *Spain* experienced in 2011—is associated with an increase in debt-at-risk of about 3 percentage points of GDP after three years. This largely reflects the effects of tighter financial conditions on the left tail of the growth distribution, as adverse financial conditions raise defaults and reduce lenders' risk-bearing capacity (October 2017 *Global Financial Stability Report*).

  In addition, tighter financial conditions are associated with greater "interest rate-at-risk"—the 95th percentile of the interest rate distribution—in the near term, because higher sovereign yields raise debt-servicing costs, pushing future debt levels upward (Lorenzoni and Werning 2019). Sovereign spreads also significantly predict upside debt risks in the near term (one to three years).[8] For example, an increase in sovereign spreads—like the one observed in *Sri Lanka* in 2022—is associated with an increase in debt-at-risk of about 2 percentage points of GDP after three years. Higher sovereign yields also affect both growth-at-risk and interest-rate-at-risk. This is consistent with the literature documenting that higher sovereign spreads raise borrowing costs for both households and firms, depressing economic activity (Gourinchas, Phillippon, and Vayanos 2016; Arellano, Bai, and Bocola 2017) and evidence that sovereign bond markets have priced in other factors (for example, a decline in productivity) that worsen debt dynamics.

[3]All online annexes are available at www.imf.org/en/Publications/FM.

[4]The analysis complements current tools in assessing debt vulnerabilities, such as the IMF Sovereign Risk and Debt Sustainability Framework (SRDSF). The debt-at-risk framework does not examine debt sustainability but complements other tools by forecasting empirically the probability distribution of the global debt path in a way that allows for nonlinearity, asymmetry, and state dependence.

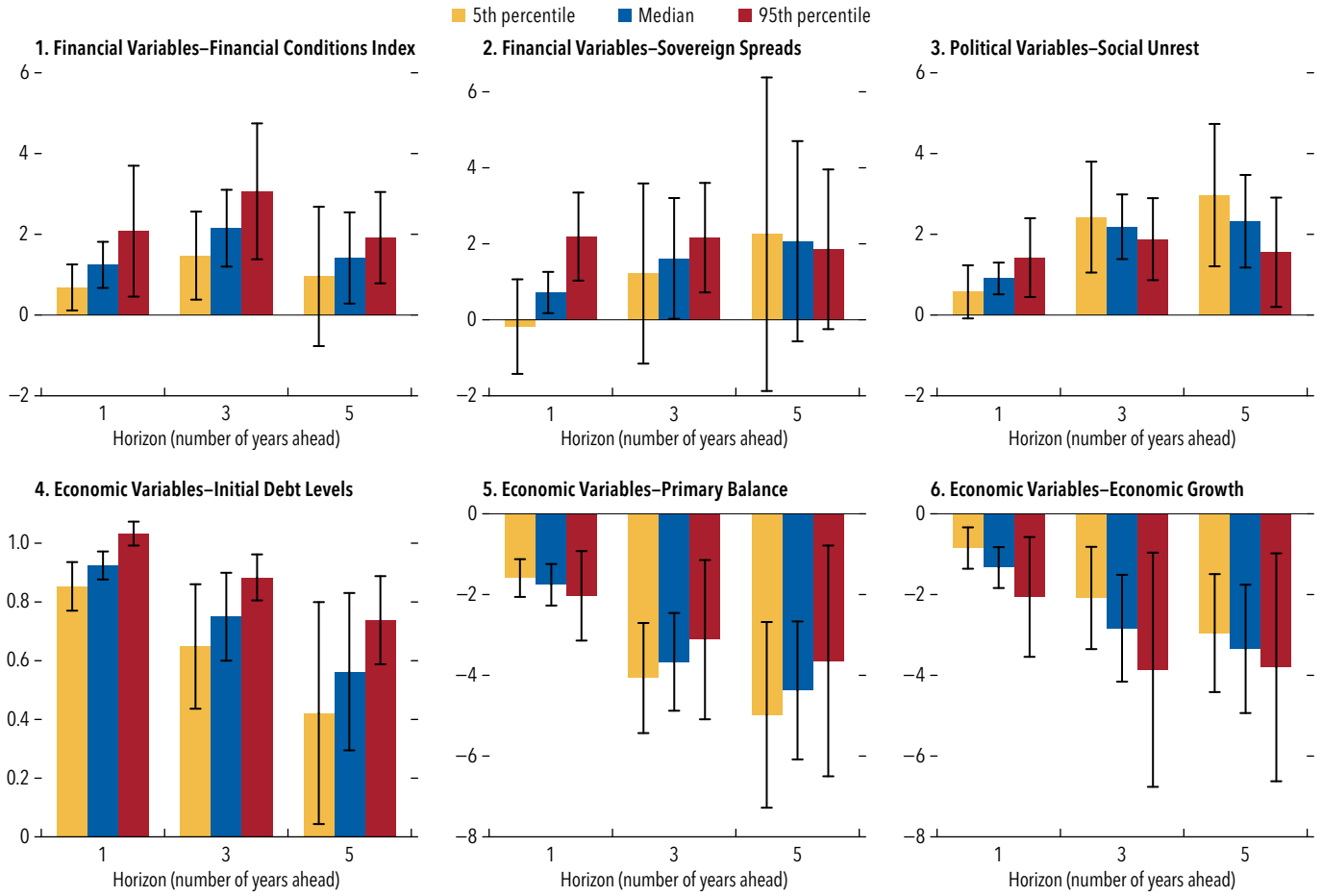
[5]The use of the 95th quantile to quantify debt risk is consistent with the growth-at-risk literature (which uses the 5th quantile of the growth distribution) as well as with the broader value-at-risk approach in finance literature.

[6]While it is not feasible to compare the statistical significance of different coefficients on the 5th, 50th, and 95th quantiles in a panel setting, the results plotted in Figure 1.3 are consistent across various forecast horizons and country samples. In addition, the distribution of country-level ordinary least squares coefficients is also generally right skewed for the variables that are associated with an asymmetric effect across quantiles of debt.

[7]Consistent with the literature on growth-at-risk, the confidence bands for the median and 5th percentile, in some cases, overlap with those for the 95th percentile.

[8]Similar results are obtained for sovereign bond yields.

Figure 1.3. Quantile Regression Results: Future Debt-to-GDP Ratio and Financial, Political, and Economic Variables
(Coefficients on conditioning variable in panel quantile regressions across forecast horizons)



Source: IMF staff calculations.

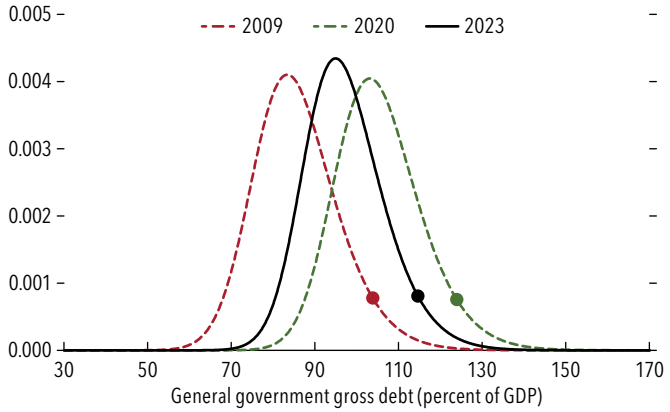
Note: The figure shows the estimated coefficients for 5th, 50th, and 95th percentiles based on panel quantile regressions on selected financial, political, and economic variables for 74 countries for the period 2009–23. Bars denote estimated coefficients. All variables except for initial debt are standardized to have a mean of zero and a standard deviation of one to ensure comparability across coefficients. The whisker in each bar shows the 90 percent confidence interval for the estimated coefficient (see Online Annex 1.1 for details).

Furthermore, economic uncertainty and uncertainty regarding policies affect the distribution of future debt, with larger effects on the left tail (Online Annex 1.1; October 2024 *Global Financial Stability Report*). Beyond financial variables, political developments such as social unrest—measured as the frequency of protests reported in the media—raise debt risks in the near term by raising economic and policy uncertainty, and impacting investor sentiment (Barrett, Boulton, and Nixon 2023) and consumption (Hadzi-Vaskov, Pienknagura, and Ricci 2021).[9]

[9]Elections are also associated with moderately higher debt risks: when an election takes place, it is associated with both growth-at-risk and deficit-at-risk (Online Annex 1.1).

- *Economic factors have persistent and asymmetric effects on the debt distribution.* Results show that the initial debt level and primary balance have long-lasting and asymmetric effects on the right tail of the distribution of future debt. Higher primary balances reduce debt across all quantiles of the debt distribution, underscoring the positive impact of fiscal adjustment on debt risks. Furthermore, higher inflation reduces debt-at-risk in both the short and medium term (Online Annex 1.1).
- *Global debt-at-risk is currently elevated, partly owing to high debt levels.* Estimates from the analysis are used to construct a conditional probability distribution of future debt for the world, as well as separate distributions for advanced and emerging

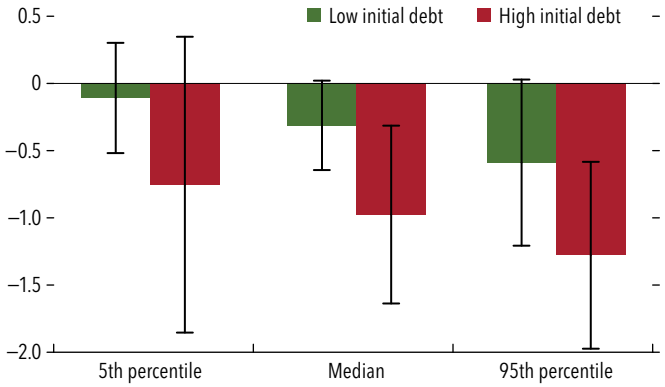
Figure 1.4. Global Debt-at-Risk and Its Evolution
(Probability density of three-year-ahead government debt-to-GDP ratio)



Source: IMF staff calculations.

Note: The probability density functions are estimated using panel quantile regressions of the debt-to-GDP ratio on various political, economic, and financial variables. The global sample comprises 74 countries–accounting for more than 90 percent of global debt–for which data on the conditioning variables are available from 2009–23. The quantile estimates are fitted to a skewed t distribution for every year in the sample (see Online Annex 1.1 for details).

Figure 1.5. Initial Debt and Debt-at-Risk
(Coefficient on real GDP growth in panel quantile regressions for three-year-ahead debt-to-GDP ratio)



Source: IMF staff calculations.

Note: The figure shows estimated coefficients for 5th, 50th, and 95th percentiles based on panel quantile regressions of the debt-to-GDP ratio on real GDP growth differentiated by low initial debt (first quartile) and high initial debt (fourth quartile). Bars denote estimated coefficients. Whiskers in bars show 90 percent confidence intervals for estimated coefficients.

market and developing economies.[10] Global debt-at-risk is estimated at 115 percent of GDP three years ahead, about 20 percentage points of GDP higher than the 2026 projection in the current *World Economic Outlook* (Figure 1.4).[11] The global debt distribution is skewed to the right side, with risks also sizable at the 75th percentile of the distribution (7 percentage points higher than the baseline projection, reaching 103 percent of GDP three years ahead). In addition, debt-at-risk remains as right skewed as it was during the global financial crisis.[12] This reflects two main factors. First, debt levels are higher now than in 2009. Second, financial and economic factors have a larger impact on debt risks when initial debt levels are higher: a result consistent with literature documenting how the debt distribution varies with debt levels (Mian, Straub, and Sufi 2021). For example, whereas an increase in growth of 1 percentage point decreases debt-at-risk three years ahead by about 1.3 percentage points of GDP when debt is above 70 percent of GDP, the effect is about 0.5 percentage point of GDP and less precisely estimated when initial debt is lower than that threshold (Figure 1.5).

- *Debt-at-risk varies significantly across countries and country groups.* Three-year-ahead debt-at-risk is estimated at about 134 percent of GDP for advanced economies and 88 percent for emerging market and developing economies (Figure 1.6), with important differences across countries. For systemically important advanced economies such as the *United States*, in which the primary deficit is the largest driver of debt-at-risk, three-year-ahead debt-at-risk is estimated to exceed 150 percent of GDP, 20 percentage points higher than the baseline debt projection in the October 2024 *World Economic Outlook* (Online Annex Figure 1.1.4; Online Annex Table 1.1.2).

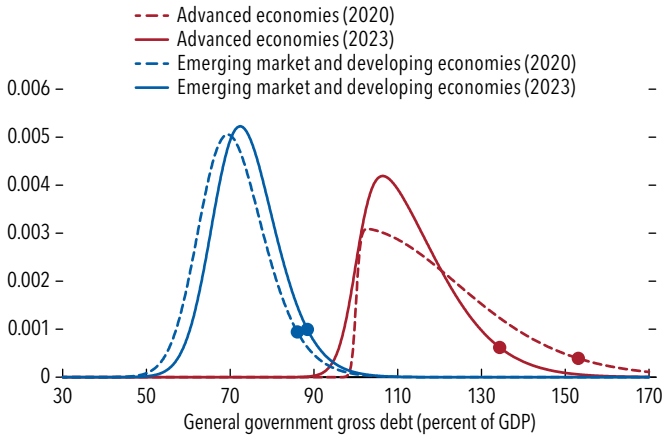
Whereas debt-at-risk in advanced economies as a group has broadly retreated from pandemic peaks, it has increased in emerging market and developing

[10]The construction has three steps: country-specific quantile estimates are aggregated using GDP weights, the unconditional distribution is recentered around the debt forecast in the World Economic Outlook database, and the conditional global debt distribution is generated using the out-of-sample predictive power of each conditioning factor (Crump and others 2022).

[11]Global debt-at-risk is 119 percent of GDP five years ahead, about 20 percentage points higher than currently projected for 2028 in the World Economic Outlook database.

[12]The model predicts median global public-debt-to-GDP ratios of 85 percent for 2009 versus 97 percent for 2023. The corresponding predicted 95th quantile of global public debt is 104 percent of GDP for 2009 versus 115 percent for 2023.

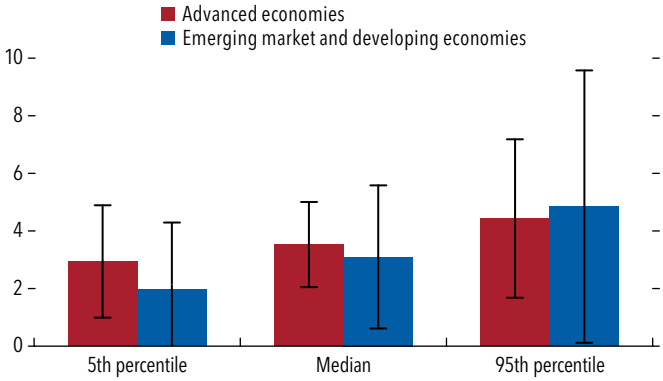
Figure 1.6. Debt-at-Risk across Income Groups
(Probability density of three-year-ahead government debt-to-GDP ratio, 2023)



Source: IMF staff calculations.

Note: Probability density functions are estimated using panel quantile regressions of the debt-to-GDP ratio on various political, economic, and financial variables for 2009–23. The quantile estimates are fitted to a skewed *t*-distribution for every year in the sample. Dots indicate the predicted 95th quantile of the debt-to-GDP ratio for each country group.

Figure 1.7. Financial Conditions and Debt-at-Risk across Income Groups
(Coefficients on financial conditions index for three-year-ahead debt-to-GDP ratio)



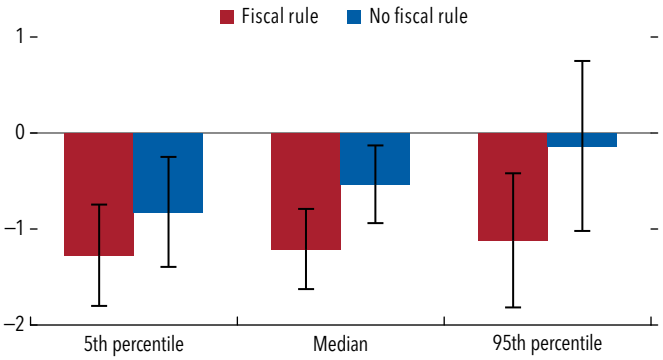
Source: IMF staff calculations.

Note: The figure shows estimated coefficients for 5th, 50th, and 95th percentiles based on panel quantile regressions of the debt-to-GDP ratio on the financial conditions index for advanced economies and emerging market and developing economies. Bars denote estimated coefficients. Whiskers in bars show 90 percent confidence intervals for estimated coefficients.

economies. Differences in debt risks between the two country groups reflects an initial higher level of debt in advanced economies and the heterogeneous impact of conditioning factors across country groups. For example, financial conditions (as measured by a financial conditions index and sovereign spreads), social unrest, and world uncertainty have larger medium-term effects on debt-at-risk in emerging market and developing economies than in advanced economies, consistent with recent empirical evidence that finds the former to be less resilient to financial (Ahir and others 2023) and uncertainty shocks (Ahir, Bloom, and Furceri 2022) (Figure 1.7). The analysis also finds that a higher primary balance is associated with lower debt-at-risk, especially when countries have fiscal rules in place, as well-designed fiscal rules mitigate the risk of fiscal slippages (Figure 1.8).

Model-estimated debt-at-risk does not fully reflect mounting spending pressures arising from the green transition, entitlements related to aging and health care, defense, and energy security. These could exacerbate the upside risks to debt projections. For example, achieving net zero emissions by midcentury is expected to increase government debt by 10–15 percentage points of GDP relative to the baseline (Garcia-Macia, Lam, and Nguyen 2024). Governments in emerging market economies and low-income developing countries need to make large investments, on the order of 3 and 11 percent of GDP per year, respectively, to close development gaps and meet the UN Sustainable Development Goals (April 2023 *Fiscal Monitor*). Accounting for these ballooning spending needs highlights the challenges of reducing debt risks in the coming years.

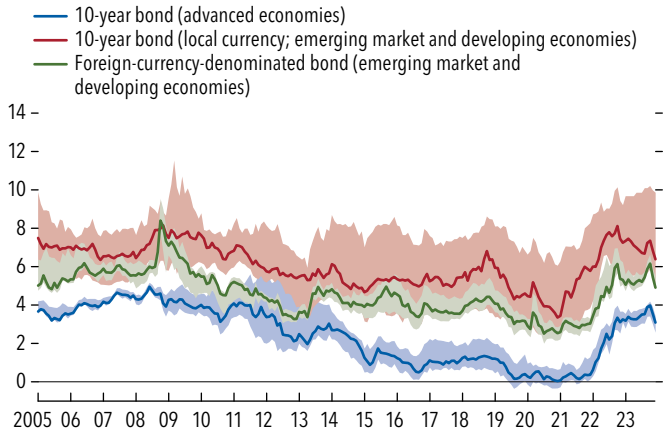
Figure 1.8. Primary Balance and Debt-at-Risk by Fiscal Rules
(Coefficients on primary balance for three-year-ahead debt-to-GDP ratio)



Source: IMF staff calculations.

Note: The figure shows estimated coefficients for the 5th, 50th, and 95th percentiles based on panel quantile regressions (Online Annex 1.1). It shows the results for the primary balance for country-years in which fiscal rules are in place versus those in which they are not. Whiskers in bars show 90 percent confidence intervals for estimated coefficients.

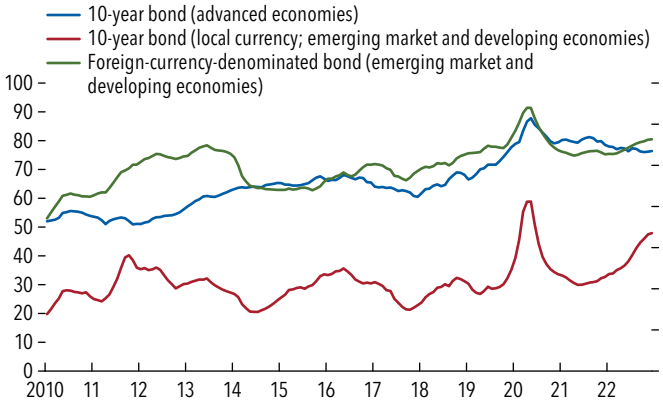
Figure 1.9. Strong Co-movements of Sovereign Bond Yields
(Percent)



Sources: Global Financial Data; Organisation for Economic Co-operation and Development; and IMF staff calculations.

Note: The figure shows medians of 10-year sovereign bond yields for 27 advanced economies, 10-year local currency sovereign bond yields for 18 emerging market and developing economies, and median foreign currency sovereign bond yields for 13 emerging market and developing economies. Shaded areas indicate interquartile ranges.

Figure 1.10. Share of Total Variance in Sovereign Bond Yields Explained by Global Factors
(Share of total variance)



Sources: Europace AG/Haver Analytics; Global Financial Data; IMF, International Financial Statistics database; JPMorgan; Nguyen, Solovyeva, and Zhang (forthcoming); Organisation for Economic Co-operation and Development; and World Bank.

Note: The figure shows the unweighted average contribution of global factors to the time-varying variance of sovereign bond yields across country groups. For each country, the contribution of global factors corresponds to the median global factor share from retained Gibbs-sampling draws (see Online Annex 1.2).

Fluctuations in Sovereign Yields and the Role of Global Factors

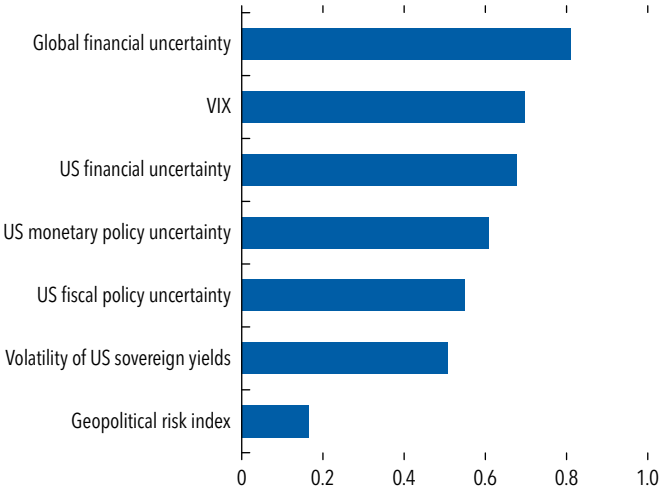
Sovereign yields contribute in a crucial way to upside risks in debt projections. The evolution of sovereign yields shows a notable and growing co-movement across countries, as the tight interquartile range for sovereign yields for individual countries in Figure 1.9 shows.[13] Indeed, new empirical evidence based on a dynamic factor model with time-varying parameters and stochastic volatility suggests that global factors play a key role in driving fluctuations in sovereign yields. According to this model, global factors explain more than 50 percent of fluctuations over the past two decades in sovereign bond yields for advanced economies and foreign-currency-denominated bond yields for emerging market and developing economies, as well as more than 30 percent of fluctuations in local-currency-denominated bond yields in emerging market and developing economies, on average (Figure 1.10). These findings are consistent with the literature suggesting that global factors drive bond yields (Diebold, Li, and Yue 2008; Gilchrist and others 2022) and also attest to the presence of a global financial cycle (Miranda-Agrippino and Rey 2020).[14]

Global factors play a varying role, however, in explaining fluctuations in sovereign yields, both over time and across countries. First, this role has increased over time, notably during the pandemic and the recent spike in global inflation. Moreover, the volatility of global sovereign yields—that is, the portion of the variance in sovereign bond yields that global factors explain—correlates highly with measures of global and US financial volatility, including the volatility of US sovereign yields, uncertainty surrounding US fiscal and monetary policy, and to a lesser extent, geopolitical risks

[13]Sovereign yields were on a declining trend after the global financial crisis, then rose after the pandemic, before moderating since mid-2023 but remaining elevated by historical standards (October 2024 *Global Financial Stability Report*). Several factors account for these patterns, including globalization, the evolution of natural interest rates, inflation expectations, and risk premiums (Diebold, Li, and Yue 2008; Summers 2015; Del Negro and others 2019). Before the pandemic, increased globalization had lowered import costs and reduced the correlation between unemployment and inflation—that is, it had flattened the Phillips curve (Hazell and others 2022; Kohlscheen and Moessner 2022)—and risk premiums across countries were declining with inflation expectations (Brixton and others 2023).

[14]The increasing role of global factors suggests that sovereign yields co-move in both levels and volatility—that is, both the first and second moments of the distribution in sovereign yields.

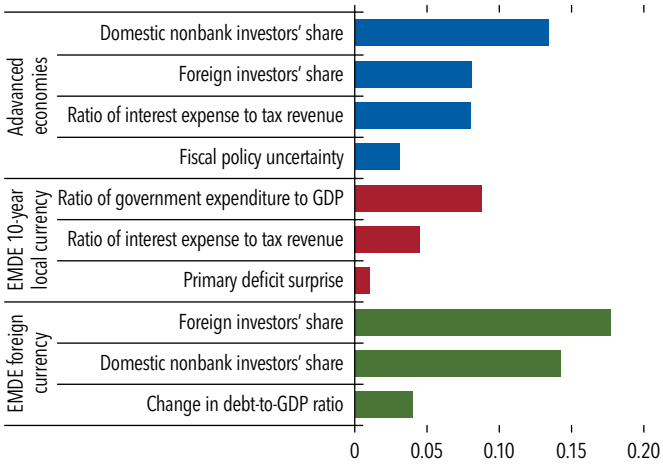
Figure 1.11. Correlation of Selected Indicators with Global Sovereign Bond Yield Volatility
(Pairwise correlation coefficients)



Sources: Baker, Bloom, and Davis 2016; Caggiano and Castelnuovo 2023; Caldara and Iacoviello 2022; Europace AG/Haver Analytics; Global Financial Data; Hong, Ke, and Nguyen 2024; IMF, International Financial Statistics database; JPMorgan; Ludvigson, Ma, and Ng 2021; Organisation for Economic Co-operation and Development; World Bank; and IMF staff calculations.

Note: The figure shows pairwise coefficients on the correlations between various indicators and the global sovereign bond yield volatility index, defined as simple averages of sovereign bond yield volatilities (that is, standard deviations) driven by global factors calculated across countries and bond instruments. The correlation coefficient for the geopolitical risk index is statistically significant at the 5 percent level. All other correlation coefficients are significant at the 1 percent level. VIX = Chicago Board Options Exchange Volatility Index.

Figure 1.12. Key Drivers of Global Volatility of Sovereign Bond Yields
(Effects on the volatility of sovereign bond yields explained by global factors given a change from 25th to 75th percentiles in selected variables)



Sources: Europace AG/Haver Analytics; Global Financial Data; Hong, Ke, and Nguyen 2024; IMF, Sovereign Debt Investor database; IMF, World Economic Outlook database; JPMorgan; S&P Global Ratings; World Bank; and IMF staff calculations.

Note: The figure shows the differential impact on variance of sovereign bond yields driven by global factors when the variable of interest moves from the 25th to the 75th percentile. Estimates are obtained using the weighted-average least squares method for 26 advanced economies and 16 emerging market economies over 2009–22 (De Luca, Magnus, and Peracchi 2018), with a panel regression model estimated separately for each country group and bond instrument. The dependent variable is the average global component of the variance for respective sovereign yields. A variable is a "robust" contributing factor if the associated *t*-statistic is greater than one in absolute value. "Primary deficit surprise" is the difference between the actual primary deficit and that projected one year ahead. See Online Annex 1.2. EMDE = emerging market and developing economy.

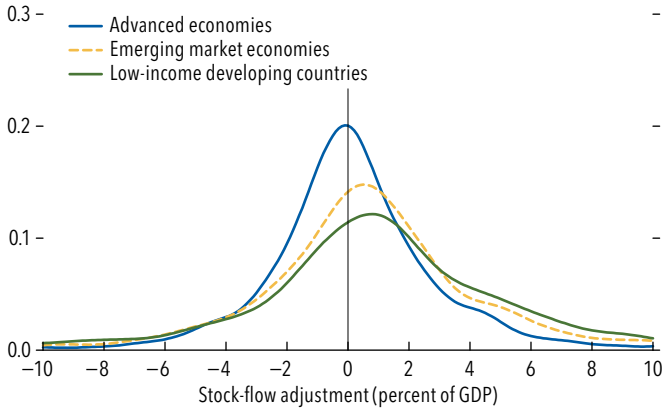
(Figure 1.11; Online Annex 1.2).[15] The high correlations suggest increasingly integrated capital markets, with global institutional investors playing a major role as well as spillovers from systemically important countries, such as the *United States*.[16] These results suggest that uncertainty surrounding fiscal and monetary policy in systematically important countries could increase the volatility of sovereign yields and debt risks for other countries.

Differences in fiscal positions, uncertainty regarding policy, and debt structures are key determinants explaining cross-country heterogeneity in the contribution of global factors (Online Annex 1.2). Global factors are more relevant for fluctuations in sovereign yields in countries with larger shares of foreign and nonbank investors (Figure 1.12). For example, fluctuations in sovereign yields explained by global factors increase by 15 percent for advanced economies if the share of nonbank investors increases from the 25th to the 75th percentile. Furthermore, higher interest burdens as a share of tax revenues are associated with greater exposure of local-currency-denominated sovereign yields to global factors. These results make it clear that reducing uncertainty surrounding fiscal policy, along with sound public debt management, can mitigate adverse fluctuations in sovereign yields and spillovers driven by global factors.

[15]The model is estimated for 45 advanced economies and emerging market and developing economies. The method has the advantage of obtaining time-varying and country-specific estimates of the globally driven volatility of sovereign yields explained by global factors. See Online Annex 1.2 for a detailed description of the data and the methodology.

[16]Longstaff and others (2011) argue that strong co-movements in sovereign spreads are related largely to their sensitivity to funding needs of major investors in sovereign bond markets. This aligns with models such as in Brunnermeier and Pedersen (2009), in which funding shocks institutional investors experience can lead to liquidity shocks in other financial assets. Hong, Ke, and Nguyen (2024) find that a one-standard-deviation increase in a US fiscal policy uncertainty index—corresponding to the increased uncertainty observed during the 2012 debt ceiling deliberations—is associated with increases in sovereign spreads of 5 basis points in advanced economies and 40 basis points in emerging market economies.

Figure 1.13. Distribution of Unidentified Debt Excluding Exchange Rate Movements, 1991–2023
(Density)



Sources: IMF, World Economic Outlook database; and IMF staff compilations.

Note: Positive (negative) stock-flow adjustments contribute to higher (lower) debt-to-GDP ratios. Unidentified debt refers in the chapter to the stock-flow adjustments, which reflect the change in debt not explained by budgetary deficits, interest-growth differentials, and exchange rate movements.

Unidentified Debt

Unidentified debt is another important source of risks to the debt outlook. Historically, unidentified debt has been high—at about 1–1.5 percent of GDP per year on average (Figure 1.13) in emerging market and developing economies—and their materialization has significantly increased public debt (Afonso and Jalles 2020).

Despite the significance of the sources and drivers of unidentified debt, there have been few systematic analyses of them. This subsection explores the issue using two complementary analyses. First, it uses a narrative approach to identify the main sources of unidentified debt by examining published IMF Country Reports for 17 emerging market and developing economies for 2000–23 (Online Annex 1.3).[17] It then classifies these sources into six categories: contingent liabilities and fiscal risks; arrears; extrabudgetary spending, such as that through various funds in public entities; institutional changes, such as changes in debt perimeters; unaccounted debt; and statistical discrepancies.

The analysis suggests that materialization of contingent liabilities and fiscal risks accounts for nearly 40 percent of unidentified debt. These liabilities and risks stem largely from losses of state-owned enterprises as well as from bank recapitalizations and loan guarantees typically implemented during banking crises and periods of financial stress (Figure 1.14; Online Annex 1.3).[18] Other important sources include arrears, recognition of debt from institutional changes in the perimeter of government, and extrabudgetary spending. These reflect weaknesses in the capacity of fiscal institutions to monitor arrears and extrabudgetary activity, which could explain why low-income developing countries tend to have the highest unidentified debt, on average. In some cases, they also arise because of governments' incentives to underrepresent debt and deficits in their official statistics.

Although the share of unidentified debt that can be attributed to each source has remained broadly stable over time, the underlying sources show significant heterogeneity across countries (Figure 1.15). For example, in *Honduras*, delays in recognizing arrears resulting from operational losses of the ailing state-owned electricity company as well as, until 2022, extrabudgetary spending through trust funds have primarily driven unidentified debt, whereas weak governance and debt management have been the main factor in *Mozambique*.

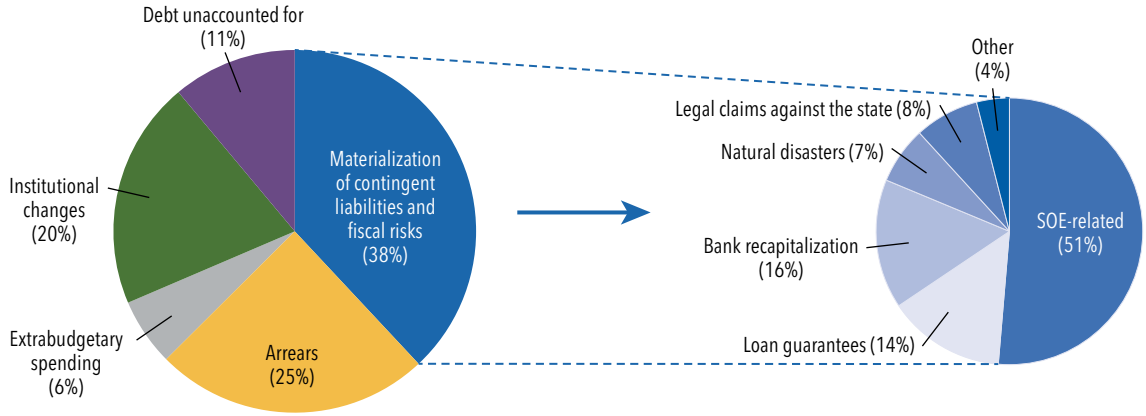
Unidentified debt tends to be significant in the wake of financial system stress. An analysis of its evolution following episodes of financial stress suggests that banking crises result in large materializations of unidentified debt of 7 percent of GDP in the crisis year, and another 2 percent of GDP in the following year. Similarly, increases in financial stress are associated with an increase in unidentified debt of 2½ percent of GDP after one year (Figure 1.16; Online Annex 1.3).[19] Overall, these large and significant effects are consistent with the narrative evidence indicating that unidentified debt often materializes when a crisis unfolds and largely takes the form of bank recapitalization, calling of loan

[17]The 17 countries are taken from a larger sample of 33 countries with the largest stock-flow adjustments (unidentitifed debt) in 2010–23 for which IMF Country Reports can identify more than 30 percent of the adjustments (Online Annex 1.3).

[18]State-owned enterprises can incur losses or have negative equity but continue to operate through government transfers or by servicing their own debt without its being recognized as government debt. Later recognition of the debt as government debt requires a large positive stock-flow adjustment related to the transaction.

[19]In addition, increases in financial stress raise the 95th percentile of the distribution of unidentified debt (Online Annex 1.1).

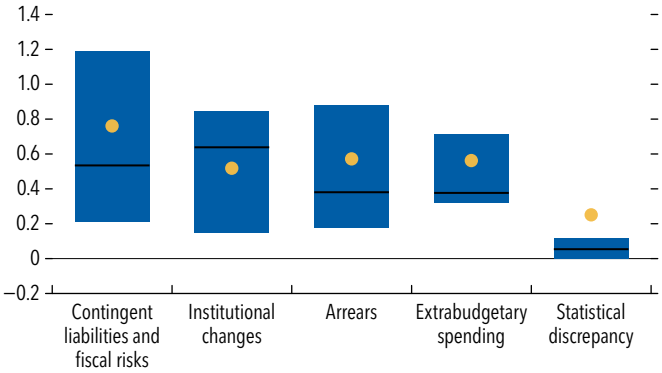
Figure 1.14. Components of Unidentified Debt, 2010–23
(Percent of total identified components, percentage points)



Source: IMF staff calculations, based on data from the IMF World Economic Outlook database.

Note: Components are based on reviews of IMF Country Reports for 17 emerging market and developing economies identified within a sample of 33 countries that had large unidentified debt during 2010–23. The set of countries was selected based on the size of their unidentified debt, computed from the IMF World Economic Outlook database, as well as on the criterion that IMF Country Reports include information that can document more than 30 percent of their unidentified debt. "Debt unaccounted for" includes statistical discrepancy. SOE = state-owned enterprise.

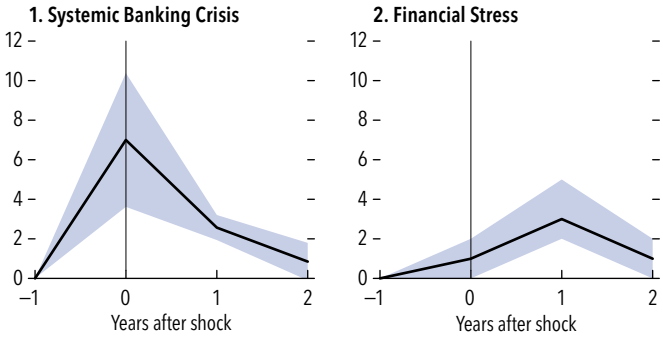
Figure 1.15. Components of Unidentified Debt
(Percent of GDP per year, average between 2010 and 2023)



Source: IMF staff calculations.

Note: The figure shows key components of unidentified debt across countries (Online Annex 1.3). Yellow markers refer to averages, and blue bars are the interquartile ranges for each measure; lines in bars show median levels.

Figure 1.16. Increase in Unidentified Debt after a Banking Crisis and Financial Stress
(Percent of GDP)



Source: IMF staff calculations.

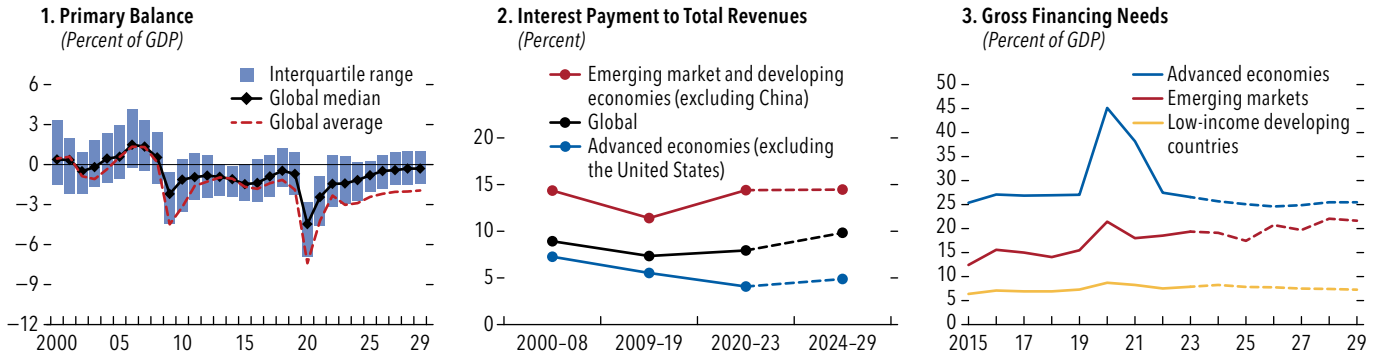
Note: Year 0 is the year of the banking crisis (increase in financial stress). Solid black lines denote the response. Shaded areas denote 90 percent confidence bands. Results are based on the analysis described in Online Annex 1.3.

guarantees, and recognition of losses in state-owned enterprises (Dovis and Kirpalani 2020; Battersby and others 2022).

Fiscal Policy to Get Debt Under Control

Fiscal policy often faces difficult trade-offs among multiple objectives: providing macroeconomic stabilization, ensuring debt sustainability, addressing distributional concerns, and supporting long-term growth. The appropriate balance for a country between macroeconomic stabilization and debt sustainability, for instance, depends on the level and the composition of its public debt (in terms both of its maturity and of the creditors to whom the debt is owed), its gross financing needs, and its economic growth path (Online

Figure 1.17. Selected Key Indicators of Debt Vulnerabilities



Source: IMF, World Economic Outlook database.

Annex 1.4; Bianchi and others 2024).[20] Deterioration in many of these factors in recent years (Figure 1.17) and the associated upside risks to debt projections suggest that many countries should orient their fiscal policy toward rebuilding fiscal buffers and containing debt vulnerabilities. Low unemployment rates and easing of monetary policy rates provide an opportune environment. Historically, financial repression has contributed to debt reduction, but it is neither viable nor desirable, as caps on interest rates and restrictions on the capital account are less feasible in globally integrated capital markets (Arslanalp and Eichengreen 2023; Chari, Dovis, and Kehoe 2020).

Fiscal adjustments will need to be decisive, deliberate, and well designed. Decisive action is required because most countries have depleted their fiscal buffers, and some will potentially need to make large adjustments. Delaying would be both costly and risky. The required adjustment will only become larger and may even become untenable if markets react negatively or if an adverse shock hits the economy. Governments will need deliberate plans to balance trade-offs and garner public support because fiscal adjustments often lead to near-term declines in output and employment. At the same time, countries need to design adjustment carefully to keep from falling into a prolonged period of anemic growth that entrenches poverty and inequality (Georgieva 2024), which underscores the importance of the composition of adjustment.

This section focuses on the role of fiscal policies in containing debt risk along three key dimensions. First, it quantifies the size of fiscal adjustments needed for a high probability of stabilizing (or reducing) debt. Second, it examines how governments can design fiscal adjustments to mitigate their adverse impacts on output and inequality, thereby increasing their social acceptability. Third, given the prevalence of unidentified debt in emerging market and developing economies, it discusses policies to limit their materialization, including during periods of financial stress.

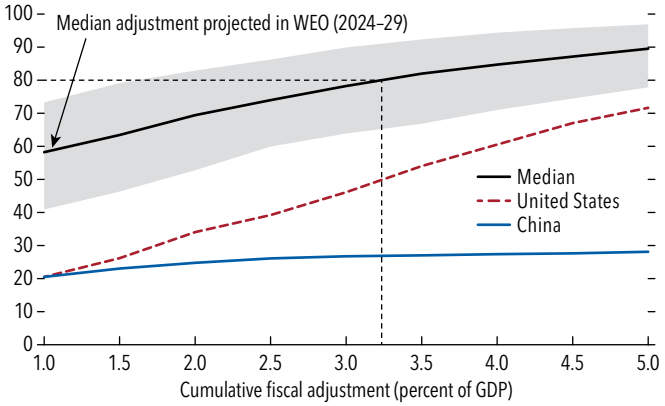
Size of Fiscal Adjustment Needed to Contain Debt Vulnerabilities

Large primary deficits are one of the key drivers of global debt-at-risk, as shown earlier in the chapter. This implies that fiscal adjustments will not only reduce debt levels but also attenuate debt risks—raising the likelihood that debt will stabilize. The size of the adjustments needed depends on initial debt levels as well as the likelihood debt can be stabilized, which is especially important in a context of significant uncertainty and upside risks surrounding debt projections.

To examine how fiscal adjustments could reduce risks to the debt outlook and raise the probability of stabilizing or reducing debt, a stochastic approach based on the IMF's Sovereign Risk and Debt Sustainability Framework is applied. The approach quantifies the size of the "proactive" fiscal adjustment—measured in terms of an improvement

[20]Online Annex 1.4 presents an illustrative model-based analysis formalizing some of these trade-offs and how various economic factors shift the balance between macroeconomic stabilization and debt sustainability. The analysis does not determine an optimal set of fiscal measures for a given size of adjustment, because countries have different social preferences, and measures need to account for country-specific circumstances.

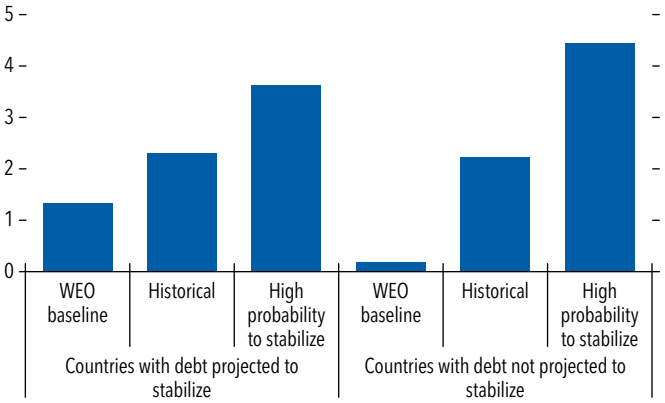
Figure 1.18. Median Fiscal Adjustment and Probability of Stabilizing or Reducing Debt by 2029
(Probability for median and interquartile range in percent)



Source: IMF, World Economic Outlook database.

Note: The cumulative median fiscal adjustment in the *World Economic Outlook* (WEO) is about 1 percentage point of GDP cumulative over six years (2023–29). Additional fiscal adjustments are the same for all countries and are applied to those countries' baseline projections. A country's probability of keeping debt from rising is calculated as the number of debt paths for which the baseline primary balance is higher than or equal to the debt-stabilizing primary balance as a percent of the total number of debt paths (See Online Annex 1.5).

Figure 1.19. Median Fiscal Adjustment across Scenarios: Baseline, Historical, and High Probability to Stabilize Debt
(Percent of GDP)



Source: IMF staff calculations.

Note: "Historical" fiscal adjustment refers to adjustments in a country that change the primary balance in a positive direction over a six-year rolling window. "WEO baseline" adjustment is the difference between the projected primary balance in 2023 and that in 2029 in the *World Economic Outlook* (WEO). "Adjustments to stabilize debt with high probability" refers to the adjustments that set the probability of stabilizing debt at 80 percent (see Online Annex 1.5).

in primary balances during 2023–29—to stabilize debt or put it on a downward path with high probability (Online Annex 1.5). The model suggests that this probability increases with the size of the adjustment.[21] For example, a 1 percent of GDP cumulative fiscal adjustment over the next five years—the projected magnitude for a median country in the current *World Economic Outlook* forecast—implies a 60 percent probability that a country's debt will stabilize or decrease by 2029 (Figure 1.18). Increasing this probability to 80 percent for a median country (a meaningful, but not extreme increase in the likelihood of debt stabilization) requires a cumulative adjustment of 3–3½ percent of GDP over the medium term.

How additional fiscal adjustment affects the probability of debt stabilization varies markedly across countries and depends on projected fiscal deficits and the interest-growth differential. For example, whereas both *China* and the *United States* have low probabilities of stabilization by 2029, a smaller adjustment is needed in the *United States* compared with *China* because its deficit projected for 2029 is closer to the debt-stabilizing level. In addition, in countries with low debt and a strong primary balance, a more limited adjustment is needed to achieve a high probability of debt stabilization.

Placing these estimates in a historical context gives a sense of the challenge policymakers are facing. Keeping debt-to-GDP ratios from rising, with an 80 percent probability of success, entails a fiscal adjustment significantly higher than what most countries have achieved in the past (2½ percent of GDP) or what most are currently planning (Figure 1.19). This is particularly true for countries that are delaying fiscal adjustment and whose debt the current *World Economic Outlook* baseline does not project will stabilize. These countries account for nearly 60 percent of global debt. Having a high probability of stabilizing debt in these countries requires an adjustment of 4½ percent of GDP over the medium term—almost twice the size of past adjustments. Importantly, delaying fiscal adjustment is costly, requiring an additional adjustment of about 0.2 percentage point of GDP per year. The median adjustment for countries where debt is projected to stabilize or decline is lower, at 3.6 percentage points of GDP,

[21]The analysis considers plausible magnitudes of fiscal adjustments over several years without analyzing the general equilibrium effects on growth and interest rates. The pace of fiscal adjustments in the new EU economic governance reforms also considers the stochastic nature of debt risk and debt sustainability.

but still considerably higher than what countries have achieved in the past. As the space for fiscal maneuver narrows, not only will governments need to adhere earnestly to commitments to achieving fiscal consolidation targets, but they will need to make the additional adjustments warranted to contain debt vulnerabilities with a high probability.

Design of Fiscal Adjustments

Fiscal adjustments inevitably involve difficult output-inequality trade-offs. Although different factors affect the success of fiscal adjustments (including the time, pace, and composition), a key objective is to mitigate their negative impact on output and inequality.[22] This implies that the design needs to be well calibrated to account for the policy mix and its heterogeneous impact according to households' income (consumption) and wealth distribution.

A Model Framework Accounting for Household Heterogeneity

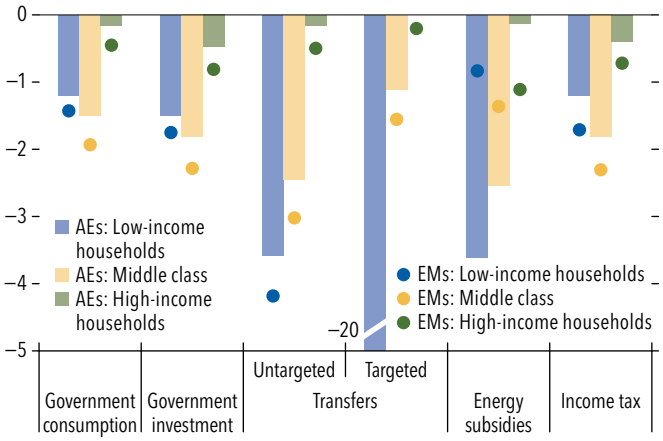
This subsection presents a Heterogeneous Agent New Keynesian (HANK) model to illustrate the impact of various fiscal measures on output and inequality and alternative policy packages, accounting for country differences. The model incorporates household income and wealth characteristics that shape the way fiscal measures affect inequality in both output and consumption (Online Annex 1.6). The analysis extends Auclert, Rognlie, and Straub (forthcoming) by considering different fiscal instruments: government consumption, public investment, subsidies, transfers (both targeted and untargeted), and progressive income taxes. Fiscal measures affect household consumption and aggregate output through multiple channels: disposable income, via wage income and transfers; interest rates; and asset revaluation. The interplay among these channels, combined with financial frictions households face (for example, the inability to access liquidity when needed), leads to large variations among households in propensity to consume, which amplify aggregate economic effects.

To illustrate the importance of structural differences in designing fiscal adjustments, the model is calibrated to match the data on household income and wealth distributions for a representative advanced economy (*United States*) and a representative emerging market economy (*Peru*). The model captures the more limited ability for households to insure against economic adversity in emerging market and developing economies and differences in households' exposure to, and the volatility and persistence of, income shocks across country groups. The analysis provides important insights on the impact of different fiscal instruments and transmission channels:

- *Expenditure and revenue measures.* Different fiscal measures affect households differently and therefore the aggregate economy as well. Cuts in transfers directly reduce household consumption, especially cuts in transfers targeted to low-income households (Figure 1.20). By contrast, a reduction in government consumption (for example, in compensation to public sector employees and in purchases of goods and services) has a sizable impact on output because it directly reduces aggregate demand. Public investment cuts have an even larger negative impact on output because they hamper production and aggregate supply (Figure 1.21). If taxes are progressive, raising them leads to smaller output losses than cuts in government transfers because high-income households reduce their consumption by less, given their larger asset holdings (Figure 1.21).
- *Impacts across countries.* The magnitude of the decline in output and consumption varies across economies, reflecting differences in country characteristics. For example, energy subsidies are regressive (that is, they benefit richer households disproportionately) in emerging market and developing economies (Coady and others 2015), but the benefits accrue largely to middle-income households in advanced economies. Thus, reducing energy subsidies tends to have a larger impact on high-income households in emerging market economies and on

[22]Previous episodes suggest that in countries that have undertaken fiscal adjustments, the average size has been 1–2 percent of GDP (Figure 1.20). The majority of adjustment episodes have lasted two to three years, although on a few occasions, they have lasted longer than six years (Online Annex Figure 1.1.1). Emerging market and developing economies have been more likely to initiate adjustments during periods of economic expansion, whereas advanced economies have often undertaken them in periods of weaker growth (Clements and others 2023). Measures have also varied across countries: whereas emerging market and developing economies have typically scaled back public investment while retaining regressive subsidies (Ardanaz and others 2021), adjustments in advanced economies have usually relied on expenditure-based measures—mostly cuts in public investment, although tax hikes have also been used in some cases.

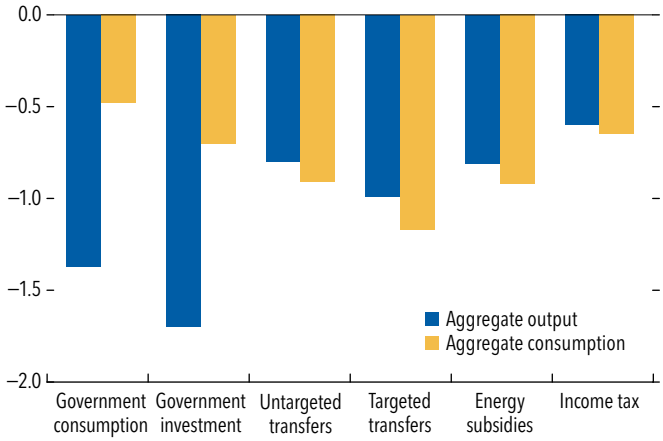
Figure 1.20. Distributive Impact of Fiscal Adjustment across Households
(Percent of initial consumption)



Source: IMF staff calculations.

Note: Simulation results are based on a temporary one-off fiscal adjustment of 1 percentage point of steady-state output for each measure in a representative advanced economy (see Online Annex 1.6). Transfers are separated into "Untargeted" (for all households) and "Targeted" (to low-income households: 5th percentile and below in the income distribution). Energy subsidies are calibrated based on energy consumption across households. Income tax is assumed to be progressive. The figure shows the impact for each type of fiscal measure (an increase in taxes or an expenditure cut), measured in terms of initial consumption for each type of household. Bars (dots) show the effects for a representative advanced economy (emerging market economy). AEs = advanced economies; EMs = emerging markets.

Figure 1.21. Impact of Fiscal Adjustment on Aggregate Output and Consumption
(Percent of steady-state GDP)



Source: IMF staff calculations.

Note: Simulation results are based on a temporary one-off fiscal adjustment of 1 percentage point of steady-state output for each measure in a representative advanced economy (see Online Annex 1.6). Transfers are separated into "Untargeted" (for all households) and "Targeted" (to low-income households: 5th percentile and below in the income distribution). Energy subsidies are calibrated based on energy consumption across households. Income tax is assumed to be progressive. The figure shows the impact for each type of fiscal measure (an increase in taxes or an expenditure cut), measured in terms of steady-state GDP.

low- or middle-income households in advanced economies (Figure 1.21).

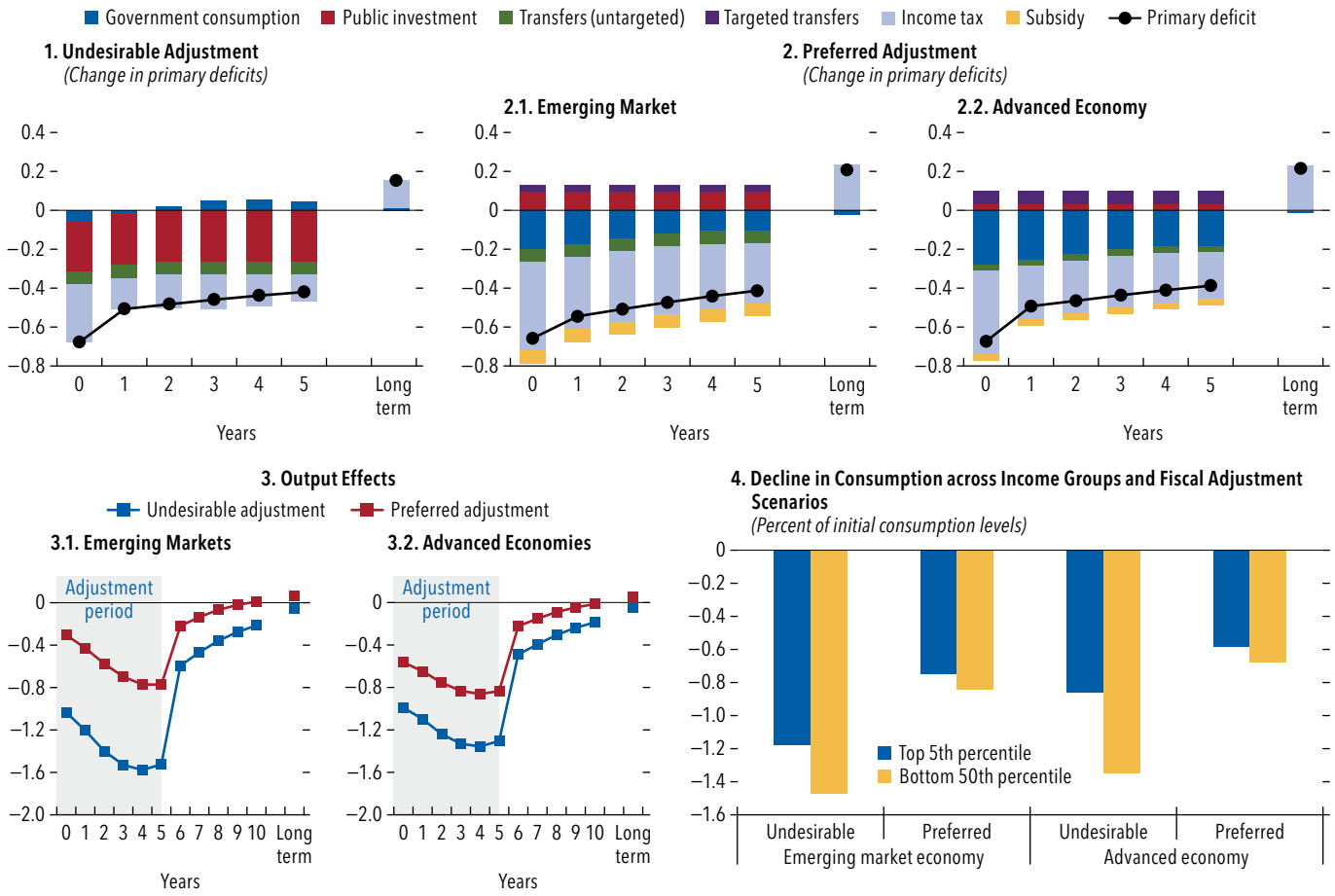
- *Transmission channels.* Fiscal adjustments affect households' consumption and aggregate output mainly through the disposable-income channel—that is, wages or income from government transfers. Spending cuts and the associated fall in disposable income reduce consumption among low- and middle-income households. It is because these households lack adequate liquid financial assets to compensate for the resulting income shortfall, in line with the findings in Ben Zeev, Ramey, and Zubairy (2023); Bayer, Born, and Luetticke (2024); Bilbiie (2020, 2024); and Broer, Krusell, and Öberg (2023). Adjustments generally have smaller effects through the interest rate and asset valuation channels, and those effects are concentrated mostly in high-income households, given their asset holdings (Online Annex 1.6). However, the relative strength of these channels varies, with greater importance in advanced economies compared with emerging market and developing economies.

Illustrative Fiscal Adjustment Packages

With these insights in mind, this section illustrates the effects on output and inequality of two alternative fiscal adjustment packages for advanced and emerging market economies. The first is an *undesirable* adjustment package that relies on cuts in public investment rather than in government consumption and retains most untargeted subsidies—the type of adjustment governments have often put forward in the past. The second is a *preferred* adjustment package that mitigates its adverse impacts on output and inequality. The latter combines revenue and expenditure measures, safeguards public investment, protects vulnerable households through targeted transfers, and phases out untargeted subsidies (Figure 1.22).[23] Preferred fiscal measures vary

[23]The analysis does not determine an optimal set of fiscal measures for a given size of adjustment because countries have different social preferences, and measures need to account for country-specific circumstances. Rather, it uses model-guided principles and illustrates how to design adjustment measures to mitigate adverse impacts on aggregate output and inequality (Online Annex 1.6).

Figure 1.22. Illustrative Preferred Fiscal Adjustment between an Advanced Economy and an Emerging Market Economy
(Percent of steady-state output, unless stated otherwise)



Source: IMF staff calculations.

Note: The simulation is based on extending the model of Auclert, Rognlie, and Straub (forthcoming). The model is calibrated to a representative advanced economy and emerging market economy by matching respective data (see Online Annex 1.6 for details). The size of the fiscal adjustment is set identically at a cumulative 3 percent of steady-state GDP over six years for comparison, but the composition varies across scenarios (undesirable and preferred) and income groups (advanced economy and emerging market economy).

across countries, depending on differences in social preferences and political feasibility considerations not captured in the model.

The size of the adjustment is set to be the same across scenarios at a cumulative 3 percent of GDP over six years (about 0.5 percent of GDP annually), informed by the analysis in the previous section. The calibrated model shows a reduction in the debt-to-GDP ratio of about 4 percentage points by the end of the adjustment period in both scenarios (Online Annex 1.6).

Model results show that fiscal adjustments weigh on near-term activity and raise levels of inequality (Figure 1.22).[24] Output falls because fiscal adjustment inevitably reduces aggregate demand as governments cut expenditures and collect more taxes. The resulting decline in wages and transfers reduces household income, which in turn curtails consumption, more so for low-income households.

[24]The near-term output loss resulting from fiscal adjustments is consistent with the findings from the vast literature (Blanchard, Dell'Ariccia, and Mauro 2010; Erceg and Lindé 2013; Guajardo, Leigh, and Pescatori 2014; Alesina and others 2018; Ağca and Igan 2019; Banerjee and Zampolli 2019; Balasundharam and others 2023). The adverse impact affects low- and middle-income households disproportionately, sharply increasing consumption inequality (Ball and others 2013).

Nonetheless, the preferred fiscal adjustment mitigates the adverse impact on output and consumption and limits increases in levels of inequality, compared with the undesirable package. For example, in the preferred fiscal adjustment, output drops about 0.8 percent of steady-state GDP, relative to 1.3–1.6 percent in the undesirable package (Figure 1.22), partly because the preferred adjustment safeguards public investment which has a large impact on output (Ardanaz and Izquierdo 2022; Magud and Pienknagura 2024).[25] The preferred fiscal adjustment also mitigates the adverse impact on low- and middle-income groups: consumption among the bottom 50th percentile is reduced by an average of 0.7–0.8 percentage point, only about half than those in the undesirable package of adjustments. In addition, the preferred adjustment also mitigates the adverse impact on consumption inequality as the decline in consumption is broadly the same across household income groups, while it is much larger for low- and middle-income groups than high-income households in the undesirable adjustment scenario (Figure 1.22, panel 4). This reflects the increase in targeted transfers in the preferred package, which helps protect vulnerable hand-to-mouth households during the adjustment period, when wage income falls (Fabrizio and Flamini 2015).

The preferred fiscal adjustment scenario is designed differently for advanced and emerging market economies. Given the same set of measures in the undesirable packages in both economies, the adverse impact on output and inequality is larger for an emerging market economy (Figure 1.22, panels 3 and 4). This reflects mainly the greater fraction of households in emerging market economies that lack the ability to insure themselves against economic adversity, consistent with Hong (2023), which finds a larger marginal propensity to consume among households in emerging market economies (Online Annex 1.6).[26] This in turn implies that adjustments in emerging markets should emphasize safeguarding public investment to limit the impact on output as well as targeted transfers to protect vulnerable households.

Although the model does not capture this directly, in some countries (for example, *Brazil*, *India*, and *South Africa*), adjustment would require reforms to tackle budget rigidities to reallocate expenditure to where it is most needed. As energy subsidies typically benefit the rich in emerging market and developing economies (for example, the price caps and broad-based energy subsidies in *Saudi Arabia* and *Thailand*), phasing out untargeted or regressive subsidies can help limit cuts in government consumption (*Republic of Congo* and *Togo*, for example) (Coady and others 2015; Black and others 2023). The greater tax potential in emerging markets implies that measures should include revenue mobilization (Benitez and others 2023), which reduces the need for expenditure cuts for an adjustment of a given size and can help finance needed public investment and targeted transfers.

Measures vary according to an economy's tax structure. For example, countries with low tax-to-GDP ratios (for example, *Mexico*) should assess existing tax rates and thresholds comprehensively, in particular those relating to value-added taxes and personal income taxes. Increasing value-added tax rates (*Nigeria*, *Thailand*), reintroducing goods and services taxes (*Malaysia*), and rationalizing tax expenditures or tax exemptions (*Brazil*, *Egypt*, *Kyrgyz Republic*) would help mobilize revenues durably to finance development needs and poverty alleviation programs, and in some cases to address chronic revenue weaknesses.

Adjustments in advanced economies that have already high tax burdens (for example, *France*) should rely more on reprioritizing expenditures (for example, through broad-based expenditure reviews) within an overall cut in government expenditure. Entitlement reform is a key priority in many advanced economies, as expenditures on entitlements account for a large and rigid share of their budgets. In countries where there is scope to raise revenues (for example, *United Kingdom* and *United States*) stabilizing (or reducing) debt may require operating on both spending and revenue measures (Figure 1.22). Actions can include raising indirect taxes and progressively increasing income taxes (*United States*), removing tax exemptions (such as value-added tax exemptions in the *United Kingdom*), and improving the efficiency of tax expenditures

[25]Over the long term, the preferred package increases output slightly, with a decline in debt-to-GDP ratios, in line with some findings in Rother, Schuknecht, and Stark (2010) that ensuring debt sustainability supports output, although the effects of fiscal adjustments on long-term output are not conclusive.

[26]Other structural differences, such as the degree of informality in an economy and social protection systems, are not modeled here and could affect these estimates.

(*Spain*). For the *European Union*, sustained political support is needed in member states to successfully implement the fiscal adjustment required by the new EU economic governance reform. Medium-term fiscal and structural plans should be underpinned by a credible fiscal strategy with high-quality measures. On the other hand, countries with long-standing fiscal prudence and benign debt outlooks should continue to preserve debt sustainability and tackle downside risks (*Indonesia*, *Sweden*).

The analysis also highlights the merits of gradual but sustained fiscal adjustments. A fiscal adjustment of the same size but implemented aggressively in half the time—that is, in three rather than six years—will lead output to contract and consumption inequality to increase more sharply (Online Annex 1.6). Such a fast-track adjustment would require politically unfeasible spending cuts and hikes in tax rates. That said, front-loaded adjustment may be necessary to reduce an economy's likelihood of debt distress, especially in economies that have acute funding pressures and have lost market access, but appropriate design can help mitigate adverse impacts on output and inequality. Several countries that have not fully withdrawn fiscal support in response to the 2022 energy price spikes should also pursue up-front fiscal adjustments.

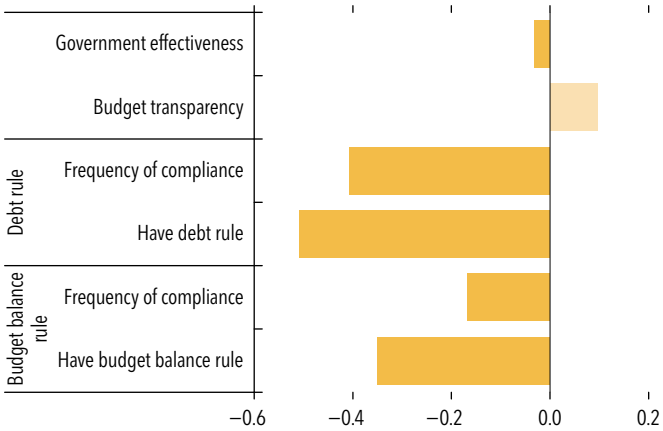
Although not directly captured in the model-based analysis, credible fiscal adjustments can help lower funding costs and increase financial stability. Although the model analysis focuses on the short-term impact on output and inequality, governments should calibrate fiscal adjustments to replenish fiscal buffers and generate policy space to address long-standing structural challenges that affect long-term growth. Other important aspects not considered in the analysis, such as the political economy of adjustment, degree of informality in an economy, strength of its social protection systems, and labor market characteristics, also shape the aggregate and distributional effects of fiscal adjustments.

Tackling Unidentified Debt

Empirical evidence suggests that indicators of fiscal governance correlate negatively with unidentified debt (Figure 1.23). Countries with stronger fiscal governance tend to have less unidentified debt, on average. In addition, certain aspects of fiscal governance—budget transparency and compliance with fiscal rules—are found to significantly reduce the unidentified debt during periods of banking crisis (Figure 1.24). In countries with weaker fiscal governance, banking crises are associated with statistically significant and sizable increases (of 10–15 percentage points of GDP) in unidentified debt. By contrast, the materialization of contingent liabilities and fiscal risks during banking crises is smaller in countries characterized by strong fiscal governance. This suggests that strengthening fiscal governance is key to mitigating the buildup of unidentified debt and containing debt vulnerabilities in periods of heightened financial stress and at other times as well. Policy priorities include the following:

- *Assessing and managing contingent liabilities.* Governments should enhance their assessment and monitoring of contingent liabilities, including those associated with state-owned enterprises (Baum and others 2020). For example, *Mozambique* publishes the consolidated accounts and incorporates fiscal risks from state-owned enterprises within its annual published reports. Appropriate risk mitigation policies—such as timely and reliable reporting and stress-testing the financial viability of state-owned enterprises—are also key to identifying and monitoring fiscal risks.

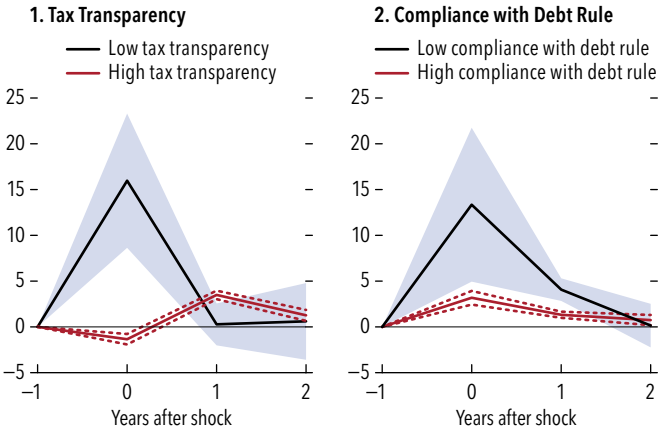
Figure 1.23. Correlations between Fiscal Institutions and Unidentified Debt
(Correlation coefficients)



Sources: Davoodi and others 2022; and International Budget Partnership, Open Budget Survey.

Note: Solid (light colored) bars denote statistically significant correlation coefficients at the 5 percent level (correlation coefficients that are not statistically significant).

Figure 1.24. Unidentified Debt and Their Relationships with Budget Transparency and Compliance with Fiscal Rules
(Percent of GDP)



Sources: Davoodi and others 2022; IMF, Fiscal Rules Dataset, 1985–2021; International Budget Partnership, Open Budget Survey; and IMF staff calculations.

Note: "Compliance with fiscal rules" refers to the frequency of compliance with debt rules. Tax transparency is sourced from the Open Budget Survey Index. Year 0 is the year of a banking crisis. Solid black (red) lines denote the response to a banking crisis; shaded areas (dashed lines) denote 90 percent confidence bands. See details in Online Annex 1.3.

- *Broadening institutional coverage.* Reducing the impact of institutional changes on unidentified debt requires instituting broad coverage of budget aggregates and expanding the institutional coverage of debt management to encompass the broader public sector. This includes reflecting all borrowing (including that by local governments and public entities with public guarantees) in the budget process and accounting for it in debt statistics (Battersby and others 2022): for example, *Mongolia* has included the liabilities of its development bank in its public debt reporting since 2015. More broadly, preparing a public sector balance sheet that covers assets and liabilities is useful in assessing debt risk. Fiscal rules with broad coverage can also limit the hiding of debt (Davoodi and others 2022).
- *Strengthening core expenditure control functions and compliance with fiscal rules.* Strengthening expenditure controls—improving budget credibility, applying effective controls to limit overspending, and moving toward cash management—is key to avoiding accumulation of arrears, which are found to be key sources of unidentified debt (Figure 1.14). To manage existing arrears, policymakers should establish a system for tracking arrears, undertake regular audits to ensure the validity of claimed arrears, and set a clearance strategy—for example, *Sierra Leone* published a strategy in 2023 to clear past arrears verified by the national auditor, as well as the annual reports on arrears, and reconciled interagency arrears. Moreover, compliance with well-designed fiscal rules can keep expenditures within rule limits (Caselli and others 2022) and avert persistent increases in unidentified debt after a crisis (Azzimonti, Battaglini, and Coate 2016; Perrelli, Poplawski-Ribeiro, and Wei, forthcoming).[27]
- *Increasing fiscal transparency.* Governments should provide timely and quality budgetary information to enhance public scrutiny—including providing open access to key budget documents, engaging the public regarding fiscal issues, and strengthening independent fiscal oversight (IMF 2023; Vasquez and others 2024). Analyzing and reporting stock-flow adjustments in fiscal outturns would improve fiscal transparency and raise awareness about unidentified debt.

Other supportive mechanisms need to be in place to contain the materialization of contingent liabilities such as those arising from banking sector recapitalizations. In this case, countries should strengthen bank supervision and regulation and establish resolution tools to minimize the fallout on public finances.

Summary and Policy Implications

This chapter makes a strong case for fiscal policies to prioritize debt sustainability and rebuild fiscal buffers, now rather than later. Global public debt is set to rise over the medium term. Even for countries where debt-to-GDP ratios are projected to stabilize (or decline), planned fiscal adjustments are uncertain and debt levels are higher than before the pandemic.

There is no room for complacency. Risks surrounding debt projections are elevated and highly tilted to the upside. Global debt-at-risk is estimated to be nearly

[27]The presence of fiscal rules is not sufficient to mitigate unidentified debt, and it may generate misplaced incentives to circumvent the rules. Fiscal rules should be well designed to have broad coverage to limit such circumvention.

20 percentage points of GDP higher three years ahead than currently projected. And elevated debts levels today amplify the negative effects of weaker growth or tighter financial conditions on future debt ratios. For emerging market and developing economies, high debt levels combined with sizable gross financing needs can raise the probability of sovereign distress—more than two-thirds of these economies are already in or at high risk of debt distress (IMF 2024). Although advanced economies typically have higher debt tolerance, elevated debt levels and uncertainty surrounding fiscal policy in systemically important countries, such as *China* and the *United States*, can generate significant spillovers in the form of higher borrowing costs and debt-related risks in other economies.

Cumulative fiscal adjustment will need to be in the range of 3.0–4.5 percent of GDP over the medium term, on average, to stabilize (or reduce) debt with high probability. This is higher than the adjustment currently projected and by historical standards for many countries and even more so in the case of countries where debt is not projected to stabilize. An adjustment of this magnitude represents about 20 percent of total revenues in low-income developing countries and about 13 percent of total revenues in other economies. Countries with long-standing fiscal prudence and benign debt outlooks will not require such a large adjustment but should continue to preserve debt sustainability and tackle downside risks.

Now is an opportune time. With major central banks pivoting to a less restrictive stance this year and economies better positioned to absorb the economic effects of fiscal tightening, a decisive push toward rebuilding fiscal buffers is warranted for many countries.

Delaying adjustment would be costly. With debt risks elevated in most countries and debt growing at a faster pace than in the prepandemic years in large countries (*United Kingdom*, *United States*), postponing adjustments would only make the required correction larger. Even more, waiting would also be risky. Country experiences suggest that high debt and the lack of credible plans for dealing with it can trigger adverse market reactions and leave little fiscal room for maneuver in the face of adverse shocks.

Gradual but sustained adjustment can strike a balance between debt sustainability risks and the strength of private demand by limiting the adjustment's near-term impact on output and inequality. Careful design of fiscal adjustments is critical in this regard. That said, countries with high risk of debt distress or acute pressures on market access need more front-loaded adjustments. But design matters.

Key elements of the needed adjustment packages vary across countries. Advanced economies should adjust expenditure priorities within an overall expenditure cut, giving special attention to reforms to entitlements that entail a large and rigid share of the budget. In advanced economies with relatively low taxes, revenue measures such as raising indirect taxes and progressively increasing income taxes, removing tax exemptions, and rationalizing tax expenditures should complement expenditure measures.

Emerging market and developing economies have great potential for raising revenue and should rely more on revenue measures, including increasing indirect taxes, rationalizing tax exemptions, and broadening their tax bases. Measures should be framed within a revenue mobilization strategy to upgrade tax systems and strengthen revenue administration capacity, possibly through leveraging the benefits of digital technology. On the expenditure side, efforts to rationalize government wage bills, reduce fragmentation of social safety nets, and phase out costly fuel subsidies—preferably framed in a comprehensive expenditure review—will generate savings that these economies can use to scale up needed public investment and transfers to protect vulnerable households.

Governments in all countries need deliberate fiscal plans, framed within credible and well-communicated medium-term fiscal frameworks, to anchor their adjustment paths and reduce uncertainty regarding fiscal policy. Strong independent fiscal oversight can reinforce government credibility by helping ensure that fiscal plans are effectively implemented.

To contain debt vulnerabilities, governments should mitigate unidentified debt arising from arrears and materialization of contingent liabilities. Strengthening fiscal governance is key. Governments should enhance their assessment and monitoring of contingent liabilities, including those associated with state-owned enterprises. More granular, transparent, and timely disclosure regarding debt, including creditor composition, instruments, exposures to risks, and the government perimeter included in debt reporting, would allow more granular assessment of fiscal risks, invite closer scrutiny, and mitigate the buildup of unidentified debt.

For countries facing debt distress or unsustainable debt, timely and adequate restructuring is needed, alongside fiscal adjustments to restore debt sustainability (Patel and Peralta-Alva 2024). Recent IMF reforms to its debt and lending frameworks, combined with efforts by creditor committees and the Global Sovereign Debt Roundtable, have helped streamline sovereign debt restructuring and shortened restructuring timelines. Further strengthening these processes is crucial to facilitate efficient debt restructuring (Pazarbasioglu and Saavedra 2024). Greater coordinated efforts are necessary to ensure concessional financing to support low-income developing countries to avoid undue fiscal tightening.

Governments should also implement complementary reforms to address debt vulnerabilities. Structural reforms—such as business deregulation, enhancing social protection systems, and reducing labor and product market distortions and barriers to trade in goods and services—should complement fiscal adjustments to support long-term growth and bring lasting reductions in debt-to-GDP ratios, by increasing fiscal revenues and lowering borrowing costs (Aligishiev and others 2023; Budina and others 2023).

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