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Research Report

The longer-term fiscal challenges facing the European Union

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The longer-term fiscal challenges facing the European Union

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Executive summary

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THE PANDEMIC AND subsequent price shocks triggered by Russia's invasion of Ukraine, have increased longer-term fiscal pressures in the European Union through higher debt, higher expected real interest rates and higher public investment needs. This Policy Brief makes some simple quantitative assessments of those effects and discusses policy implications, with the following results.

FIRST, LONG-TERM increases in primary fiscal balances required to offset higher debt and higher expected real interest rates are in the range of 0.5 percent to 1.5 percent of GDP for most EU countries. However, because of pre-existing differences in fiscal space, not all countries will need to undertake that adjustment, while some countries may need to adjust by substantially more. Among the 21 EU countries for which we have data to undertake this analysis, 14 will need to adjust by more than they were planning to do by 2025.

SECOND, THE REQUIRED additional fiscal adjustment looks manageable, although it is substantial in some cases. To achieve medium-term debt-reducing primary balances, several EU countries will need to raise primary balances by more than 2 percent of GDP above their 2025 target, but no country will need additional fiscal adjustment of more than 3 percent of GDP.

THIRD, MARKET DATA suggests that the future path of real interest rates is very uncertain. Compared to the period immediately preceding the pandemic, longer-term expected real interest rates have increased by about 2 percentage points but remain low on average, at about 1 percent in real terms. Future developments depend on whether the structural factors that led to low interest rates in the first place persist or unwind. While interest rates might decline again, fiscal policymakers should not make plans that assume such a decline.

FOURTH, PUBLIC SPENDING needs for additional defence and climate spending run well above 1 percent of GDP per year. These needs do not appear to have been incorporated into current fiscal baselines, and hence will come on top of the adjustment described above.

TO ENSURE THAT fiscal adjustment does not defeat its purpose by slowing growth, it is essential that it is conducted gradually. In countries that require such adjustment, it should start as soon as cyclical conditions allow.

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1 Introduction

Since 2020, the European Union has suffered two large shocks: first, the pandemic, then the price shocks triggered by Russia's invasion of Ukraine (referred to as 'war shocks' below). These shocks have created new fiscal challenges for the EU, through three channels. First, deficits and debt have increased. Second, there has been an impact on both actual and expected real interest rates, and hence the cost of public borrowing. Third, the shocks have accelerated and increased the need for public investment in specific areas, particularly climate and defence. This creates a dilemma: fiscal space has likely declined, but public investment needs have gone up.

We seek to contribute to the debate on how to address this dilemma by offering some simple quantitative assessments. Considering changes in debt, growth expectations and real interest rate expectations, how much has the fiscal outlook worsened compared to 2019? How much adjustment will be required to put debt on a downward trajectory? How large are the differences in fiscal space across the EU? Is the recent increase in interest rates permanent or temporary? To what extent could higher public investment needs, particularly on climate and defence, add additional fiscal pressure? We conclude with a brief discussion on how the objectives of lowering debt and accommodating higher public investment could be reconciled.

The methods used aim to (1) enable comparisons both over time and across countries, and (2) be sufficiently simple to make it clear what is driving the results. As such, this note is intended to complement – not replace – more exhaustive analyses by the European Commission (2023) and at the country level.

Our time horizon is the medium and 'longer' term: roughly, the next five to ten years. We do not deal with the long-term challenges posed by ageing populations. These add to the complications identified in this note, and generally require *sui generis* solutions, such as pension and healthcare reforms.

2 Fiscal space after the pandemic and war shocks

Figure 1 shows the evolution of the distributions of public debt and the primary (non-interest) fiscal balance in EU countries plus the United Kingdom since 1993, the year after the signing of the Maastricht treaty. The figure shows that for EU countries with median debt or lower, 2022 debt levels are not exceptionally high; they are in fact slightly below both the 1993 level and the levels just after the 2010-12 euro crisis. Nor are primary deficits in these countries exceptionally large. However, the debt ratio of the countries at the 75th percentile of the debt distribution (that is, the quarter of countries the highest debt ratios) is at historic highs. Furthermore, these debt levels have drifted further from the median than at any time since the early 1990s.

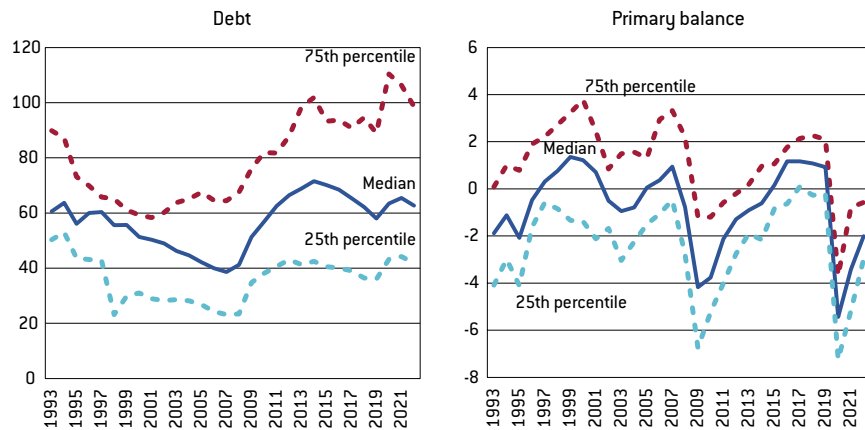
These changes do not give a clear picture of how much the fiscal outlook has changed since 2019, however:

- Recent increases in debt and deficits might, to some extent, be self-correcting, as output continues to recover from its large drop during the pandemic, and temporary expenditures to counter the pandemic and energy shocks expire. Indeed, in 2021 and 2022, the primary balance bounced back, and debt declined as a share of GDP (also reflecting the impact of unexpected inflation on nominal GDP).
- Current debt and primary deficits do not capture the effect of the recent rise in interest rates. Insofar as this leads to higher future real interest rates, this may put upward pressure on deficits and debt ratios in the future.

- Finally, long-term growth may have been affected by the pandemic, the policy response to the pandemic (such as reforms undertaken in the context of the national recovery plans) and the energy shock, with uncertain net impact.

In short: while one would presume that the fiscal outlook has worsened because of the pandemic and war shocks, the magnitude of this deterioration (perhaps even the sign) is not clear. To get a clearer picture, one needs to examine the drivers of longer-term fiscal pressure.

Figure 1: General government debt and primary balance in percent of GDP, current EU plus UK, 1993-2022



Source: Bruegel based on data from the IMF April 2023 World Economic Outlook. Note: The left panel shows the evolution of the distribution of gross public debt in the current EU countries plus the UK, while the right panel shows the evolution of the distribution of the primary balance. Both are expressed as shares of GDP. The solid lines in the centre show the median debt and primary balance, respectively. The red dotted lines at the top show the 75th percentile of the distributions of debt and the primary balance, respectively, while the lighter blue dotted lines at the bottom show the 25th percentile. The primary balance is defined as general government revenues minus non-interest expenditures.

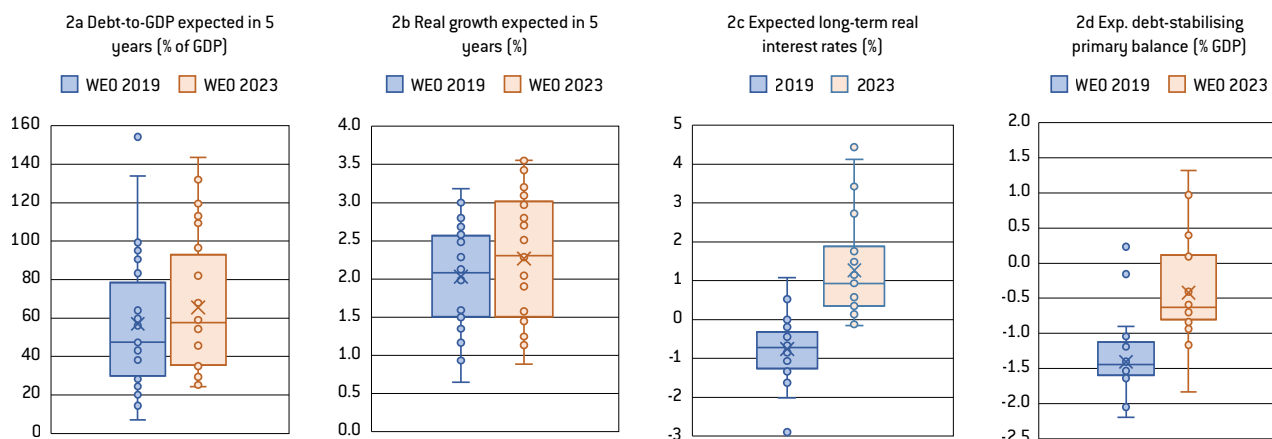
2.1 Changes in the drivers of longer-term debt sustainability, 2019-2023

Figure 2 provides evidence on how the drivers of debt sustainability have changed since 2019. To identify the longer-term effects of the pandemic and energy price shock, we compare 2019 five-year ahead forecasts from the October 2019 IMF *World Economic Outlook* (WEO) with the five-year ahead forecasts from the April 2023 WEO. For real interest rates, we use long-term market expectations (see the note to Figure 2 for the definition and country coverage). The main results are as follows:

- The median of the distribution of five-year-out expected debt/GDP in the EU has increased by 10 points of GDP (Figure 2a). At the same time, debt is expected to have become more dispersed, with the 25th percentile of the expected debt distribution rising by only 6 points of GDP, and the 75th percentile rising by almost 15 points of GDP.
- Longer-term expected growth has not declined; if anything, growth expected in five years is slightly higher today than it was in 2019 (Figure 2b). At the 75th percentile of the growth distribution, expected real growth is higher by 0.4 percent per year.
- Longer-term expected real government borrowing rates have increased substantially, by almost 2 percentage points (Figure 2c). This said, they remain low on average, in the order of 1 percent. Furthermore, the difference between real expected borrowing rates and expected real growth continues to be negative in most EU countries¹.

1 The exceptions are the Czech Republic (r-g=0.2), Greece (r-g=0.7), Hungary (r-g=0.7), Italy (r-g=1), Poland (r-g=0.3), and Romania (r-g=0.9).

Figure 2: Longer-term drivers of fiscal pressure in the EU, October 2019 versus April 2023



	2019	2023	Diff.	2019	2023	Diff.	2019	2023	Diff.	2019	2023	Diff.
75 th pc	78.5	92.9	14.4	2.6	3.0	0.4	-0.3	1.9	2.2	-1.1	0.1	1.2
Median	47.3	57.5	10.2	2.1	2.3	0.2	-0.8	1.0	1.8	-1.4	-0.6	0.8
25 th pc	30.0	35.6	5.6	1.5	1.5	0.0	-1.3	0.4	1.7	-1.6	-0.8	0.8

Source: Bruegel based on IMF (October 2019 and April 2023 databases of the World Economic Outlook) and Bloomberg. Note: Figures 2a and 2b show the distributions of 5-year expectations of debt/GDP and real growth, respectively, according to the IMF's October 2019 and April 2023 World Economic Outlook. For example, in Figure 2a, the left box chart shows the distribution of debt/GDP expected for 2024 in October 2019, while the right box chart shows the distribution of debt/GDP expected for 2028 in April 2023. Figure 2c shows the distribution of long-term government borrowing rates expected in October 2019 and April 2023, respectively, computed as an average of forward rates in 5, 10, 15 and 20 years, weighted by the original maturity structure of debt, deflated by 5-in-5 inflation swap forward rates (with the same deflator used for all euro-area countries and thus assuming no intra-euro inflation differentials). Figure 2d shows the distribution of the steady state debt-stabilising primary balance expected in five years, computed as $pb^* = d^*[r-g]/(1+g)$, where d is the 5-year expected debt shown in Figure 2a, g the five-year expected growth shown in Figure 2b, and r the long-term expected real interest rate shown in Figure 2c. In each figure, the boxes show the interquartile range (25th to 75th percentile of the distribution), the lines inside the boxes the median and the x-crosses the mean. The 'whiskers' represent the top and bottom of the distribution, excluding outliers (observations more than 1.5 times the length of the box away from either end of the box). Figures 2a and 2b show all EU countries plus the UK, whereas 2c and 2d show only countries for which forward interest rate data is available (Bulgaria, Cyprus, Estonia, Lithuania, Luxembourg and Malta are excluded).

The simplest way of putting together all these factors involves the concept of the 'debt-stabilising primary balance,' shown in Figure 2d. This is the primary balance that is necessary to stabilise the debt at a particular level, assuming the economy is in a steady state in which the primary balance, gross financing needs, real interest rates and real growth rates remain unchanged. If real interest rates are higher than real growth rates and the primary balance is zero, debt will grow faster than GDP, and the debt-to-GDP ratio will rise. To offset this, the debt-stabilising primary balance needs to be in surplus. Conversely, if real interest rates are lower than real growth rates and the primary balance is zero, then debt will grow slower than GDP, and the debt ratio will fall. Hence, the debt-stabilising primary balance needs to be in deficit.

Figure 2d and the summary table below it show that the steady-state debt-stabilising primary balance has risen, but not dramatically: by about 0.8 percentage point at the median and the 25th percentiles, and 1.2 percentage points at the 75th percentile. For example, an economy that could previously afford to run a primary deficit of about 1 percent of GDP forever without seeing its debt ratio rise (because its interest rate was slightly lower than its output growth), would now need to run a primary balance of about zero to achieve the same result, as long-term real interest rates have increased by more than growth (the possibility that real interest rates might decline again is examined below).

2.2 By how much do primary balances need to rise to start bringing down debt?

While the steady-state debt-stabilising primary balance shown in Figure 2d is a convenient measure to compare fiscal pressures over time and between countries, it may overestimate the primary balance required to stabilise debt ratios in EU countries today because it assumes that, starting in 2029, all debt is rolled over at the interest rates expected for 2029. In fact, only a portion of the debt stock is rolled over, while most of the rest of the debt will continue to be serviced at rates corresponding to pre-2022 debt issuance, until the historic debt stock has matured.

At the same time, the debt-stabilising primary balance is (by definition) lower than the primary balance required for declining debt, something that Article 126 of the Treaty on the Functioning of the European Union requires of all countries with debt above 60 percent.

To take into account the impact of average interest rates on the debt dynamic and to illustrate how the results would change if one requires debt to decline rather than merely to stabilise, we computed the primary balances that correspond to the following three scenarios for the debt path, taking into account the current debt structure of each country:

- For all countries, stabilisation (ie flattening out) of the debt ratio is required in the long term.
- For countries with debt above 60 percent of GDP in 2029, the debt ratio is required to fall by at least 0.5 percent of GDP per year between 2029 and 2060 (this implies a faster fall in the earlier years; see below). For countries with debt at or below 60 percent by 2029, the debt ratio is required to not increase (ie flatten out or decrease) in the long term.
- For countries with debt above 60 percent of GDP in 2029, the debt ratio is required to fall by at least 1 percent of GDP per year between 2029 and 2060. For countries with debt below 60 percent, the debt ratio is required to not increase in the long term.

The assumption is that starting in 2029, the primary balance is held constant. Between 2024 and 2029, it is assumed to gradually adjust to the primary balance corresponding to each scenario.

Figure A1 in the appendix shows the associated debt paths. Note that in all scenarios requiring a long-run reduction in the debt ratio, the initial debt-reduction is considerably faster than the assumed long-run debt reduction speed of 0.5 percent or 1 percent of GDP, respectively. For example, in the scenario requiring a long run annual decline of the debt ratio by 1 percent of GDP, the debt ratio of Greece would initially decline from 152 percent of GDP debt ratio in 2028 to a debt ratio of 138 percent in 2033, ie by almost 3 percent of GDP on average between 2029-2033, while average annual debt ratio reduction pace between 2029-2033 would be 1.5 percent for Spain, 1.3 percent for France, 1.3 percent for Italy, and 1.2 percent for Belgium.

Table 1 shows the primary balances associated with each scenario, referred to as $pb^*(0)$, $pb^*(0.5)$ and $pb^*(1)$, respectively (first three columns). For reference, each country's 2025 structural primary balance objective from the 2022 stability/convergence programme is also shown (fourth column). The three columns to the right show the additional adjustment, beyond the existing 2025 target, that each country would need in order to reach $pb^*(0)$, $pb^*(0.5)$ or $pb^*(1)$, respectively. The results can be summarised as follows:

First, most of the debt stabilising/reducing primary balances shown remain negative, and when they are positive, they are in a range – up to around 2 percent of GDP – that has historically been shown to be feasible, even over longer periods. This said, an important caveat applies: the debt-reduction scenarios were picked for illustrative purposes, and a full debt-sustainability analysis may imply that some countries should reduce debt more forcefully.

Second, for nine of the 22 EU countries shown, the 2025 primary balance target set in the 2022 stability programmes (pb_{25_sp}) is insufficient to reach the debt stabilising $pb^*(0)$. In 14 countries it is insufficient to reach $pb^*(0.5)$, and in 16 countries it is insufficient to reach

pb*(1). Since the exercise assumes that pb* is reached only in 2029, this is not necessarily a cause for concern. This said, in some cases, the remaining adjustment gap is considerable. For example, the gap between pb*(1) and pb25_sp exceeds 1.5 percent of GDP in eight countries and 2 percent of GDP in four countries.

Table 1: Debt stabilising/reducing primary balances versus 2025 primary balance targets

Country	pb*(0)	pb*(0.5)	pb*(1)	pb25_sp	pb*(0)-pb25_sp	pb*(0.5)-pb25_sp	pb*(1)-pb25_sp
Austria	-0.84	0.05	0.62	0.60	-1.44	-0.55	0.02
Belgium	-1.26	-0.08	0.45	-1.20	-0.06	1.12	1.65
Croatia	-0.44	-0.08	-0.08	-0.30	-0.14	0.22	0.22
Czechia	0.07	0.07	0.07	-1.80	1.87	1.87	1.87
Denmark	-0.42	-0.42	-0.42	2.30	-2.72	-2.72	-2.72
Finland	-0.61	0.07	0.73	-1.40	0.79	1.47	2.13
France	-1.53	-0.46	0.10	-1.70	0.17	1.24	1.80
Germany	-0.75	0.00	0.72	-0.40	-0.35	0.40	1.12
Greece	1.51	1.93	2.33	2.70	-1.19	-0.77	-0.37
Hungary	0.52	1.15	1.60	1.40	-0.88	-0.25	0.20
Ireland	-0.60	-0.60	-0.60	1.90	-2.50	-2.50	-2.50
Italy	1.30	1.93	2.37	-0.30	1.60	2.23	2.67
Latvia	-0.96	-0.96	-0.96	-1.00	0.04	0.04	0.04
Netherlands	-0.78	-0.78	-0.78	-2.80	2.02	2.02	2.02
Poland	0.43	0.43	0.43	-0.20	0.63	0.63	0.63
Portugal	-0.54	0.08	0.68	1.70	-2.24	-1.62	-1.02
Romania	0.39	0.39	0.39	-1.40	1.79	1.79	1.79
Slovakia	-1.17	-0.24	-0.24	-0.80	-0.37	0.56	0.56
Slovenia	-2.01	-0.70	0.58	-0.80	-1.21	0.10	1.38
Spain	-0.12	0.55	1.05	-1.20	1.08	1.75	2.25
Sweden	-0.49	-0.49	-0.49	2.10	-2.59	-2.59	-2.59

Source: Bruegel based on European Commission (2022a), Government of France (2022) and WEO April 2023 data. Note: pb*(0) is defined as the primary balance that will stabilise debt in the long run, assuming that it is held constant from 2029 onward and that primary balances up to and including 2023 turn out as reported in the WEO, while 2024-28 primary balances are computed through linear interpolation. pb*(0.5) is similarly computed as the primary balance consistent with a decline in the debt ratio by at least 0.5 percent of GDP per year between 2029 and 2060 for countries with a debt ratio above 60 percent in 2029, while pb*(1) is the primary balance consistent with a decline in the debt ratio by at least 1 percent of GDP per year between 2029 and 2060 for these countries. Both paths imply faster declines in earlier year (see Figure A1). Debt ratios of countries with 2029 ratios at or below 60 percent are only required to not increase in the long term. pb25_sp is the 2025 structural primary balance target from the 2022 stability and convergence programmes.

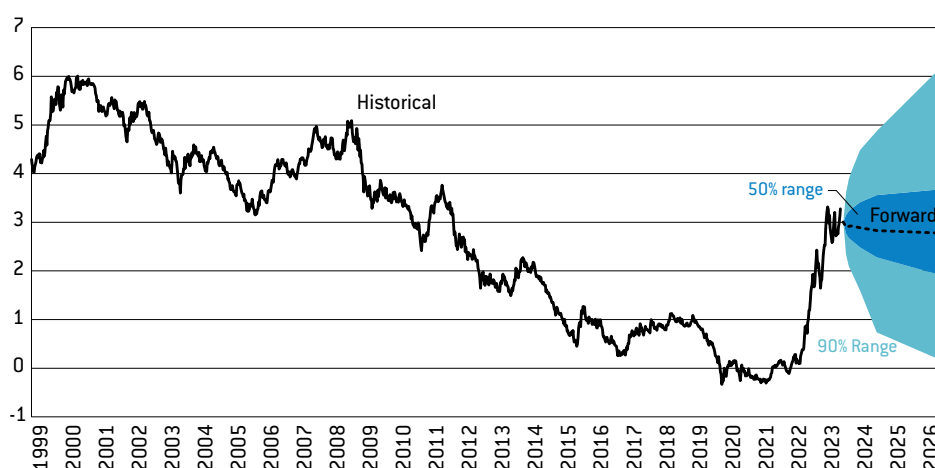
To summarise: debt pressures have increased considerably because of the pandemic and war shocks. This is not so much because of the rise in debt itself, but because of higher expected longer-term interest rates. The result remains manageable in all EU countries, in the sense that the fiscal adjustment that is needed to put debt on a continuously declining path is feasible by historical standards. This said, in some countries, this decline may not be fast enough to protect countries from the implications of adverse shocks to growth and interest rates. And in about half of EU countries, the paths that are shown will require adjustment that goes far beyond what is already planned in their 2022 stability and convergence programmes.

3 Will real interest rates stay at the currently expected levels?

As shown in the previous section, longer-term expected real interest rates, computed using forward interest rates and market-based inflation expectations, have increased substantially compared to their pre-pandemic levels. However, the predictive power of forward rates has been low in recent decades.

One possible way to quantify uncertainty around baseline interest rate projections is to use swap options from which probabilities can be derived. This approach suggests that uncertainty about the level of nominal interest rates in the euro area is very high, even at the 3-year horizon (Figure 3). With 50 percent probability, investors expect the 10-year euro swap rate – a good proxy for the (nominal) euro-area risk-free rate – to be in the 1.9 percent to 3.7 percent range in 2026. The 90 percent probability interval is enormous, ranging from 0.1 percent to 6.2 percent for 2026.

Figure 3: 10-year € swap rate, forward rate and option-implied confidence intervals



Source: Bruegel based on Danske Bank and Bloomberg (data retrieved on 31 March 2023). Notes: The chart displays historical and possible future values of the 10-year euro swap rate, in percent. The 10-year euro swap rate reflects the markets' expectations of the average short-term nominal rate over the next 10 years and can thus be interpreted as a good proxy for the 10-year risk-free rate of the euro area (even if euro swaps with maturities above two years have a standard quotation against the six-month Euribor and thus entail a minor credit component, currently fluctuating at around 5-10bps). Dark and light blue shaded areas correspond to the 50 percent and 90 percent confidence intervals, respectively, as defined by risk-neutral probabilities derived from the option prices on 10-year swap rates.

Given the high uncertainty around nominal market interest rate expectations, it helps to reflect on what the fundamentals behind long-term real rates may imply about the possible direction of real rates in the next few years. Before the current post-COVID-19 episode of high inflation and sharp monetary tightening, interest rates were on a steady downward trend for at least two decades (Figure 3). This fall can be explained by the saving and investment behaviour of economic agents (and hence the supply and demand for funds), as well as by the demand for safe assets.

3.1 Potential drivers of the fall in rates in recent decades

On the supply side, the decades before COVID-19 saw an increase in savings. One simple reason was higher income levels. Another major driver behind this trend was demographics, and in particular the increase in life expectancy, which pushes workers to save more of their income in anticipation of their longer retirements (Ferrero *et al.*, 2017; Blanchard, 2023). At the global level, a third explanation for the increase in saving was the 'global savings glut'

phenomenon identified by Bernanke (2005): some emerging country governments – China and oil-exporting countries in particular – accumulated huge current-account surpluses resulting from reliance on exports and, in some cases, from exchange-rate interventions since the end of the 1990s. Finally, the increase in inequality in advanced countries, with an increase in wages and capital gains at the top of the income distribution and stagnation in real revenues for the bottom half of the distribution since the end of the 1970s, led to an increase in the income share of the population, characterised by a lower propensity to consume.

On the demand side, profitable, or sufficiently safe, private investment opportunities may have been lacking in advanced economies. One reason may be low population growth in advanced countries, which could translate into low future demand for goods and services and thus weighs on current investment. Other factors could also drive the decline in capital expenditure: the fall in the relative price of durable equipment; a broken financial sector or one that has wrong incentives; poor managerial incentives to invest within companies; slower productivity growth (or greater difficulty in rewarding innovators); monopoly positions in some industries leading to huge rents and disincentives to increase production; and finally, the reduced capital intensity of leading industries. The decline in public investment after the global financial crisis and the euro crisis also contributed to this lower investment trend.

Greater demand for safe assets also played a crucial role in reducing safe interest rates. First, the tighter prudential regulations adopted after the global financial crisis required financial institutions to hold safer and more liquid assets, therefore structurally increasing the demand for this type of asset. Second, the global savings glut resulted in a large increase in the international reserves held by emerging market countries, which were overwhelmingly invested in safe assets – ie sovereign bonds from advanced countries. This could in fact have been part of a more general trend, in which savings might have been concentrated in the hands of savers with a low propensity to invest in risky activities, possibly because these risk-averse savers might have a preference for ‘nominal safety’ or liquidity, rather than risk-adjusted returns².

3.2 Is the era of low interest rates over?

Beyond the current sharp increase in monetary policy rates, which is likely to be partly reversed as inflation recedes, are some of these fundamental trends reversing, resulting in a regime shift towards higher real interest rates?

As far as saving is concerned, one major change in recent years has been the fall in China’s current account surplus, from almost 10 percent of GDP in 2007 to less than 2 percent in 2022. However, interest rates do not seem to have reacted to this fall during the pre-COVID-19 period. This could indicate that the role of the global savings glut (or at least China’s contribution to it) was not as important as previously thought.

Another potential change could come from demographics. The fall in the fertility rate in most countries (Goodhart and Pradhan, 2020), and/or an increase in the retirement age to compensate for the increase in life expectancy, could also dampen the increase in saving.

The demand for safe assets is expected to remain high, mainly because of financial regulation requirements. However, two factors could affect demand in the opposite direction. First, reduced reserve accumulation from emerging economies may lessen the demand for safe assets. Second, in advanced countries, low-income workers are regaining bargaining power in a strong labour market (as is currently the case in the United States). This could reduce income inequality in favour of households with a high propensity to consume.

2 Several papers have sought to quantify the weights of these different drivers based on various models. For instance, Rachel and Summers (2019) explained the fall by 320 basis points in equilibrium real rates in advanced countries from 1970 to 2017 as follows: the fall in productivity growth explains 180 bps of the rate decline, demographic factors (ie lower population growth, longer retirement, length of working life) explains another 180 bps, the rise in inequality exerted a drag on real rates of 70 bps, and other private sector factors explain an additional 260 bps. Meanwhile, increases in government debt and expansions in social insurance programmes actually pushed rates up by 360 bps in the meantime.

The trickiest evolution to predict, but also probably the most crucial, is that of investment, as noted by Blanchard (2023). Investment could go up significantly for many reasons in the coming years. Climate change could bring about fundamental changes because climate change mitigation will require huge green investment from both the private and the public sectors (see also section 3). A significant increase in carbon prices could lead to stranded assets that would need to be replaced quickly. And adaptation to higher temperatures will also lead to higher investment needs (eg in dams). Moreover, COVID-19 and current geopolitical tensions are driving firms to rethink the geography of their value chains and are pushing them towards reshoring parts of their activities to increase their resilience, which could lead to increased capital expenditures. Public investment should also increase to face these new challenges (green, defence, education, digital, healthcare, etc.). Finally, in the private sector, new investment opportunities could also arise, for instance, if artificial-intelligence technologies deliver on their transformative promises. If they materialise, these various trends would push interest rates up.

To conclude, it is possible to think of reasons why interest rates may be permanently higher than in the pre-COVID-19 years, but it is very difficult to assess the quantitative importance of these arguments³. Even if there are good reasons to believe that rates will eventually come back to their pre-pandemic lows after the current inflation episode subsides (Blanchard, 2023; IMF, 2023), uncertainty around the timing and extent of this decline suggests that fiscal policymakers should not take it for granted. Instead, EU policymakers should bring fiscal balances gradually towards (or in the case of high-debt countries, above) their debt-stabilising primary balances, conditional on baseline market expectations. If rates end up being lower than suggested by current forward rates, policymakers will still be able to adjust their plans and reduce their primary balance targets in a few years.

4 Fiscal pressures arising from public investment priorities

A potential additional source of fiscal pressure may be the failure of current spending plans to adequately account for pressing public investment needs. We briefly highlight three priority areas: defence (which is entirely public spending), climate transition (which is shared between the public and private sectors in a ratio of about one-third/two-thirds), and digital transition (which is mostly private, though it requires some public resources).

4.1 Defence

In 2006, NATO defence ministers agreed to commit a minimum of 2 percent of their GDP to defence spending – a commitment that was reinforced in 2014 in response to Russia’s annexation of Crimea and turmoil in the Middle East. Countries below 2 percent spending agreed to move towards the 2 percent target within a decade (NATO, 2023b). Eurostat data for 2021 indicates a level of 1.3 percent of GDP defence spending in the EU, with only three countries (Greece, Latvia and Estonia) meeting the 2 percent threshold. Data reported by NATO (2023a) is slightly higher than Eurostat data (see Annex Figure 2) and suggests that Poland was also above 2 percent in 2021. Preliminary data for 2022 reported by NATO (2023a) suggests that actual defence spending in 2022 kept growing at the same rate as nominal GDP on average in the EU.

³ Although its baseline scenario is for real rates to go back to pre-COVID-19 levels when inflation falls back to target in advanced countries, in its alternative scenarios, IMF (2023b) tried to quantify the effects on equilibrium rates of these various possible trends (deglobalisation, lower inequality, energy transition, higher government debt, etc), and found non-negligible effects if they were to materialise.

Defence spending will likely increase, as several countries have announced ambitious plans in response to Russia's invasion of Ukraine. NATO members might now take the 2 percent military spending requirement more seriously. Reaching that target would require 0.7 percent of GDP in additional annual defence spending on average in the EU. Some EU countries with relatively high debt levels will have to increase their defence spending more than the EU average, since such spending stood at just 0.8 percent in Portugal, 0.9 percent in Belgium and 1.0 percent in Spain. Italy's defence spending was 1.4 percent of GDP in 2021. However, the most indebted EU country, Greece, was well over the target, at 2.8 percent in 2021.

4.2 Climate transition

While climate change can affect debt sustainability through several channels, including growth and borrowing costs, the most direct medium-term channel is higher public investment needs (Zenios, 2021). According to the central scenario in European Commission (2020b), achieving a 55 percent greenhouse gas emissions reduction by 2030 compared to 1990 requires additional total (public and private) annual investment in energy and transport of €360 billion (at 2015 prices) on average per year, corresponding to roughly 2 percentage points of annual EU GDP. Even more investment is needed beyond 2030 to reach net-zero emissions by 2050. Additionally, the costs of reducing to zero by 2027 the dependence on Russian fossil fuels requires an investment of €210 billion (presumably at current prices) in 2022-2027 and a further €90 billion in 2028-2030, according to the REPowerEU action plan (European Commission, 2022).

A significant share of this additional investment will have to be funded by the public sector. The share of public funding can be reduced by appropriate government regulation, taxation policy and a higher carbon price. Nevertheless, some public spending cannot be substituted by private investment easily, for example, when energy-network externalities cannot be properly priced. Other examples justifying public investments are informational inefficiencies and the difficulty of pricing tail risks.

Fostering private investment with the use of regulation, taxation and elimination of subsidies has limitations. For example, a significant increase in gas and electricity prices related to the war in Ukraine should be welcomed from the perspective of the green transition, as it creates strong incentives for the private sector to move away from fossil-fuel consumption. But governments throughout the EU have rushed to dampen the impact of higher energy prices. There are political limitations on energy price increases, and the same applies to tighter regulations and subsidy elimination.

Based on the National Energy and Climate Plans of EU countries for overall climate-related investments during 2021-2030 (including tax incentives and subsidies), the share of the public sector in total climate investment is about one-third (Darvas and Wolff, 2022). This implies that the public sector should fund about 0.6 percent of GDP of the total 2 percent of GDP additional climate investment needs. Estimates in Baccianti (2022) are even higher, suggesting 1.8 percent additional annual public investment needs. The increased climate mainstreaming of the EU's Multiannual Financial Framework and the green component of NextGenerationEU (NGEU) help to fill only a small portion of the funding gap. Moreover, NGEU expires in 2026, so southern and eastern EU countries that are currently receiving large amounts from NGEU will have to find new resources after 2026 to maintain their climate investment.

The IMF WEO forecasts that total economy investment (both private and public) in the EU is expected to decline from 24.6 percent of GDP in 2022 to 23.8 percent of GDP in 2028. While the components of the investment forecasts are not known, it is unlikely that the IMF baseline includes 2 percent of extra climate investment when the total investment rate is expected to decline.

4.3 Digital transition

European Commission (2020a) estimated the digital transformation investment gap at €125 billion, or 0.9 percent of GDP, per year. Some part of this funding need must be covered by the public sector, such as the cost of reaching the 100 percent online provision of key public services target of the EU's 2030 Digital Compass⁴. The public sector can play an important role in fostering digital skills and digital inclusion, and the digitalisation of small- and medium-sized enterprises, among others. Darvas *et al* (2021) estimated that NGEU would cover only a portion of the investment gap. Some countries with high public debt rank poorly in digital public services and digital skills.

5 Conclusion

Our findings and their implications can be summarised in four main points.

1. Pandemic and war shocks have increased longer-term fiscal pressures in the EU through three channels: higher debt, higher expected real interest rates, and higher public investment needs; the required long-term increases in primary fiscal balances are 0.5 percent to 1.5 percent of GDP for most countries.

To quantify the fiscal impact of higher debt and higher investment needs, one can compare the permanent fiscal balances that are required to stabilise debt at approximately today's level with those that were required to stabilise debt before the pandemic. These have increased by 0.8 percent of GDP on average, and by 1.2 percent to 2 percent of GDP in the 25 percent most impacted countries. Additional public spending needs for defence, climate and digital transitions – which does not appear to be incorporated in fiscal baselines, eg of the IMF – run well above 1 percent of GDP per year.

2. There are wide differences in fiscal space across EU countries, and these have widened further as a result of pandemic-related debt increases and higher expected real interest rates.

One illustration of the differences is to compare the fiscal adjustment that countries need to undertake to put their debt on a steadily declining path with the fiscal adjustment already planned in the 2022 stability programmes. Out of the 21 countries for which the analysis was conducted, 14 will need to adjust by more – in some cases, considerably more – than they currently plan to adjust by 2025. For example, to achieve a decline of debt of at least 1 percent in 2060 (and a faster speed before), eight EU countries will need to adjust by more than 1.5 percentage points of GDP, on top of the adjustment planned by 2025 (or undertake reforms that raise economic growth with similar impact).

3. Fiscal pressures remain manageable even for the countries with the highest adjustment needs, in the sense that the adjustment these countries need to undertake to put their debt paths on a steadily declining path appears feasible by historical standards.

The required fiscal adjustment remains manageable in the following sense. First, the maximum 'permanent' primary surpluses required to continuously reduce the debt ratio in the illustrative scenarios examined in this paper are around 2 percent of GDP. Second, to reach a 'permanent' primary surplus by 2029 that reduces debt subsequently and by at least 1 percent

⁴ See https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en.

in each year in 2029-2060, the maximum fiscal adjustment some countries will need to undertake over and above their adjustment plans by 2025 is in the range of 2-3 percent of GDP. This looks feasible over a 5-6 year period.

Two caveats apply, however. First, to deal with the possibility of adverse shocks, baseline debt reduction paths may need to be steeper in some countries than the paths that were assumed in this paper. Only a full debt sustainability analysis can show whether this is the case. Second, it is unclear whether these countries are also able to undertake the additional adjustment required to fund higher public investment (and answering this question is beyond the scope of this paper). Regardless of the answer, it is essential to explore ways to undertake this investment most efficiently, including at the EU level.

To ensure that fiscal adjustment does not defeat its purpose by slowing growth, it is essential that it is conducted gradually (see IMF, 2023b). This means that it should start as soon as cyclical conditions allow.

4. While a decline of the real interest rate over the medium term remains a possibility, fiscal policymakers should not make plans that assume such a decline.

The main quantitative findings of this paper are based on current market expectations for real interest rates. Since 2019, these have increased by about 2 percentage points, although they remain moderate by historical standards. The median level is around 1 percent, while the highest levels in the euro area around 2 percent (a few countries outside the euro area face higher rates). Market implied uncertainty around nominal interest rates is very high over the next three years. Whether interest rates remain at their current levels, go down again, or even increase further depends on whether the structural factors that led to low interest rates in the first place persist or unwind, with arguments on both sides. Hence, while there is a possibility that interest rates decline again, fiscal policymakers should not make plans that assume such a decline.

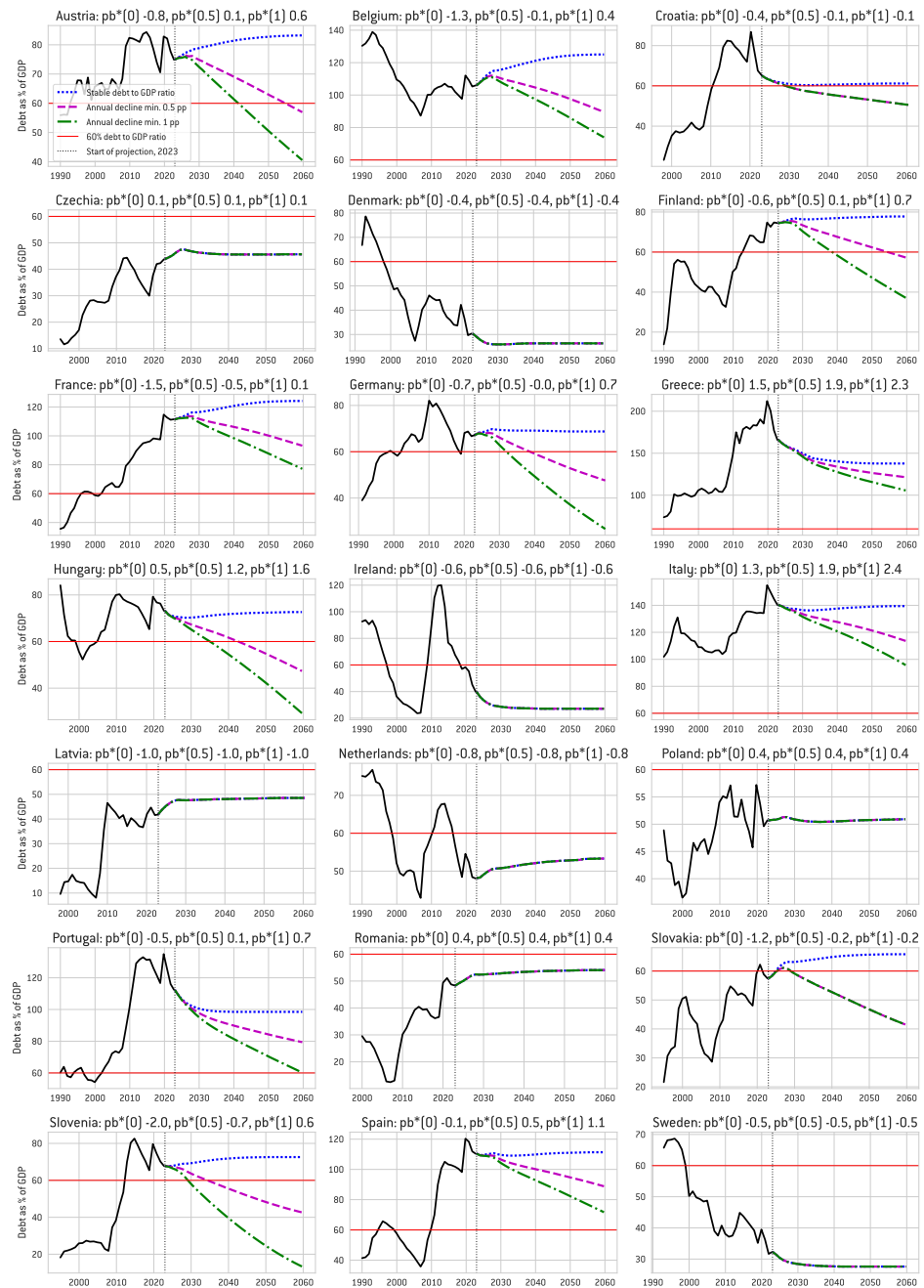
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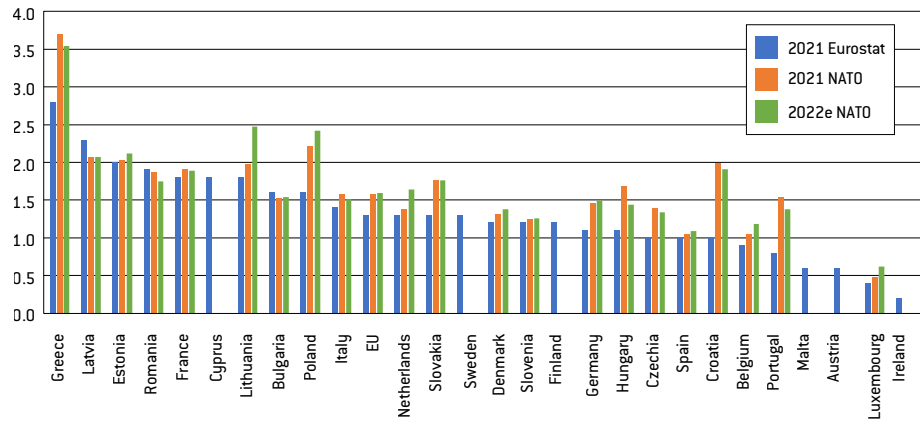
Appendix

Figure A1: Debt paths associated with estimated primary balances shown in Table 1



Source: Bruegel. Note. Figure A1 plots debt to GDP ratio projections for different primary balance scenarios. They refer to constant primary balances from 2029 onward. Each scenario is computed based on (1) WEO data up to and including 2023 for the primary balance and debt, as well as up to and including 2028 for nominal GDP; (2) the assumption that the primary balance will converge linearly from the WEO projection for 2023 to a constant primary balance from 2029 onwards. Scenario 1 ($pb^*(0)$ in title, blue) sets the 2029 constant primary balance to stabilise the debt ratio by 2060. Scenario 2 ($pb^*(0.5)$ in title, purple) prescribes a minimum annual decline in the ratio by 0.5 percentage points for countries with 2029 debt ratios above 60 percent. Scenario 3 ($pb^*(1)$ in title, green) prescribes a 1 percentage point annual decline for these countries. Debt ratios of countries with 2029 ratios at or below 60 percent, are required not to increase in the long term in scenarios 2 and 3. These projections are based on sovereign bond data, ESM and EFSF debt data and interest projections, ECB data on short term borrowing, IMF growth forecasts for 2028, and market expectations for inflation and interest rates (see note to Figure 2). Amortisation and interest rate burdens from old debt are financed by primary surpluses and new debt issuance. We model issuance and refinancing costs by approximating and reproducing each countries' original maturity profile and adding interest costs according to expected market rates for respective maturities and projection years.

Figure A2: Defence spending in EU countries (% GDP)



Sources: Eurostat's 'General government expenditure by function (COFOG) [GOV_10A_EXP_custom_5665704]' database; NATO (2023a), Table 3: Defence expenditure as a share of GDP (page 159). Note: 2022e refers to an expected value for 2022 as reported by NATO (2023a). NATO data for the EU refers to the 21 NATO members of the EU as of 2022. According to Eurostat, only three countries, Greece, Latvia and Estonia reached the 2% of GDP defence spending commitment in 2021, while NATO data suggest Poland has exceeded the target as well.