EU fiscal rules: time to reform

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The EU fiscal rules are one of if not the most important aspects of EU economic policymaking. Over the years, they have grown more complicated and difficult to understand. The two founding metrics - the level of public debt and the size of the deficit - nevertheless remain in place. This is despite the fact that the level of debt now seems to be a poor guide to financial sustainability given structurally lower interest rates. This study looks at how well public debt and deficits perform in predicting sovereign stress in Europe as compared to the burden of servicing debt. The idea is to chart a course of reform for the fiscal rules based on the principles of financial and environmental sustainability, and equality between and within member states.

The past and present of fiscal governance

Early years

To adopt the euro, all member states were required to fulfil four conditions, known as the convergence criteria, agreed upon in Maastricht in 1991. They consisted of a set of macroeconomic indicators, focusing on price stability, long-term interest rates, exchange-rate stability, and sustainable and sound public finances. Importantly, the Maastricht Treaty was based on two key reference values, which still represent the core of the EU fiscal rules – public deficits must not exceed 3% of GDP and public debt should be below 60% of GDP. The reference values are specified in a protocol annexed to the Treaty.

The value of 60% reflected the average value prevailing among relevant countries at the time of drawing up of the Treaty – with Germany and France registering a value close to the target. The 3% rule emerged from the 60% rule based on certain assumptions around growth and inflation rates. While few countries were in breach of the deficit threshold, several countries had debt levels above 60%. Given the difficulties of requiring an immediate adjustment, a higher debt-to-GDP ratio was accepted, providing that "the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace".[1] Unsurprisingly, the two reference values have been extensively criticized for being too rigid and not grounded on a solid theoretical framework and/or economic rationale.[2]

The countries of northern Europe had strong, stable industrial bases. For Europe's less-developed southern countries, the Maastricht Treaty was grounded on the optimistic idea that countries characterized by heterogenic performance could converge towards common goals, activating a spontaneous catching-up process of backward regions to achieve the EU Treaty objective of economic and social cohesion.[3,4] However, as we discuss in a later, the EU's poorer countries have greater public investment needs, so the fiscal rules have, if anything, stymied rather than promoted convergence.

The main rationale for the convergence criteria, though, was to foster sound budgetary policy and reduce the tendency of national governments to run excessive deficit and debt levels

over time – the so-called deficit bias. The presence of external constraints would prevent cross-border spill-over effects on other EU members (from fiscal policies to monetary policy). The idea was that, while the implementation of expansionary fiscal policies by an individual EU member stimulates its economy,[5,6] it may induce inflation, while the increase in public debt may amplify solvency risk. Higher inflation may require the ECB to raise interest rates, constraining growth in other countries, while solvency risk may spill over to other EU members. The Treaty, therefore, strictly rules out bailout commitments by the EU institutions and the ECB, so as to discourage excessive deficit spending and debt accumulation.

Despite considerable criticism from economists of all persuasions (aside from those within official institutions), the original EU rules were reinforced over time. The SGP, signed in 1997, strengthened the deficit and debt limits established by the EU Treaty and introduced a system of multilateral surveillance over fiscal policies.[7] The essence of the SGP is the commitment of all EU member states to achieve the "medium-term objective of budgetary positions close to balance or in surplus". This "will allow all member states to deal with normal cyclical fluctuations, while keeping the government deficit within the reference value of 3% of GDP". The ambition was to permit countercyclical policies during a recession, when the fiscal deficit balance could give way to a maximum deficit of 3% of GDP.

Observance of the supranational fiscal rules is guaranteed through two processes, namely, the preventive and corrective arms. The former aims at ensuring sound public finances through submission of compliance reports and three-year fiscal plans; the latter identifies the policy responses to undertake in case of excessive deficits (and/or debts), the Excessive Deficit Procedure (EDP). Under slow growth in the late 1990s and early 2000s, the first country to breach the 3% reference value was Portugal, followed by Germany, France, the Netherlands, Greece and Italy.

The fiscal rules were duly revised, adding greater complexity to the evolving framework. In 2005, the revision of the SGP introduced the concept of differentiated, country-specific medium-term objectives (MTOs) – the budgetary target of governments over the medium term.[8] Previously, MTOs were defined in general terms and required member states to have budgetary positions close to balance or in surplus. The 2005 amendment was not only country-specific but defined the MTO in structural terms. Member states' structural deficit, the deficit that is independent of the business cycle, could be at most 1% of GDP. The amendment also foresaw a benchmark structural deficit adjustment of 0.5% of GDP towards the MTO every year. A higher consolidation effort is required in good economic times and a lower one in economic downturns.

In the case of exceptional circumstances, such as a severe economic downturn, negative growth rate and/or significant loss of output, and below average growth, member states are allowed to diverge temporarily from their MTOs and to have a deficit above the 3% GDP reference value.[9] In this event, the deadline for correcting the deficit may be extended and account is given to national structural reforms, which are supposed to improve the long term sustainability of public finances and to allow the country to return towards its MTO within the stability programme horizon.

The medium-term budgetary objective, therefore, became a crucial indicator for the governance framework in the euro area. By filtering out the effects of the business cycle and one-off and temporary measures, it aimed to give a more accurate picture of the underlying

financial position than the headline deficit.[10] However, the reform brought an unobservable variable into the EU framework, namely, the structural budget balance.

Problems with structural balance calculations

A number of criticisms can be levelled at the structural-balance calculations. One relates to the realism and internal consistency of aggregate production functions. Economies are highly complex human systems and determinate relationships are rarely found in the social sciences. The idea that there is a determinate, known relationship between capital, labour and output is questionable. Indeed, the development and subsequent appeal of the Cobb-Douglas production function is more a product of its attractive mathematical properties than it being based on the observation of industrial or economic processes.

As to its internal validity, it has long been recognised that aggregate capital cannot be measured consistently.[11] Capital goods, like all goods, comprise many categories of items, from buildings to roads, machinery and more. Measurement of capital goods in physical terms, such as the number of different types of specific goods, would require a long list of items and would, therefore, lack concision. Quantifying the stock of capital in monetary terms in a given year and then using it as a base year to calculate the real capital stock depends crucially on the choice of base year and the relative prices in that year. For instance, a period of technological advancement is likely to result in a fall in the price of machinery and equipment, but not structures (which are subject to limited productivity improvements), whereas a recession may affect the price of structures more. Taking a period following a productivity boom as a base year will result in a relatively low level of machinery, and a period following a recession is likely to result in a relatively low level of structures.

TFP is also subject to severe measurement problems. TFP is a measure of output relative to total inputs in production. Just as labour productivity is a measure of how efficiently labour is used, TFP is a measure of the combined use of labour and capital in the production process. It is used to decompose the contributions of technical change and the growth in production factors, namely, labour and capital, to the overall growth in output. In decomposing the various contributions of labour, capital and technical progress, one says that a given increase in output could be achieved by either a certain amount of productivity growth, growth of labour, or growth of capital. If inputs are complementary, and they typically are, this is meaningless. It is at least meaningful to say what would happen to the output of an IT firm if it increased the number of computers, holding the number of programmers constant, but it is less meaningful to say what share of output growth is due to programmers and what share is due to computers or, for that matter, due to technical change.[12] For these and other reasons, measurement of TFP remains elusive.[13,14]

Potential output is subject to estimation errors arising from the calculation of the structural component of unemployment (NAWRU). The Kalman filter approach for measuring NAWRU suffers from "endpoint bias", as greater weight is assigned to more recent data.[15] This leads its measurement to be procyclical, in that structural unemployment is likely to be assessed as high in a recession and low during a boom. Higher structural unemployment, say, means that the potential labour force is smaller, and hence, potential output is also lower. When unemployment is structural and not temporary, there is less labour available to be used and the

economy is deemed to be operating closer to full capacity. This results in a decrease in the OG and an increase in the structural budget deficit, as a smaller share of the deficit is due to the economic cycle, ultimately leading to a reduction in the leeway allowed by public finance rules. In other words, unemployment may be deemed structural in a recession due to the methodology rather than the underlying labour market, resulting in less space for fiscal expansion, when most member states most need it.

Moreover, the estimated level of potential output, calculated twice a year by the Commission, is often revised after the fact. This is due to methodology changes by the Commission or when forecasted data are updated.[16] For instance, methodological changes occurred in 2002, 2004, 2010, 2013 and 2016.[17] Such revisions have significant implications and have been found to be procyclical.[18] This means that a downward revision of potential output in a recession decreases the OG and the fiscal space of the country.

During the boom of the 2000s, which in some countries was a bubble, estimates of the structural balance and associated variables, such as potential output, proved to be massively underestimated. In more recent years, the methodology used by the European Commission seems to underestimate the potential output, at least compared with the estimates produced by other international institutions.[19] This implies that some EU member states have to cope with limited fiscal flexibility, if not with enforced and inappropriate fiscal policies. After the global financial crisis of 2007-2008, the revision in the OG estimations intensified, increasing the scepticism toward fiscal rules based on cyclically adjusted variables.[20]

SGP evolution

The inability of the fiscal rules to prevent sovereign stress and default in the EU called into question their effectiveness in doing what they were designed to do. Debate on how they might be reformed once again took place and various proposals were put forward. Additional criteria became operational, with a number of revisions to the SGP, such as through the Six Pack (2011), the Two Pack (2013) and the TSCG in the Economic and Monetary Union (EMU) (2013).

The "Six Pack"[21] strengthened fiscal surveillance, reforming both the preventive and corrective arms of the SGP. It established the macroeconomic imbalance procedure (MIP), aimed at identifying, preventing and addressing macroeconomic imbalances that could adversely affect the EU's economic stability. To reinforce the preventive arm of the SGP, the Six Pack reform introduced an additional indicator for assessing the progress toward the MTO, the so-called expenditure benchmark (EB). While there are several variations of the expenditure rule, the general principle is that net government spending should remain at or below the growth in potential output. Spending increases in excess of potential output growth need to be matched by revenue-raising measures. The EB differs from the structural balance, as it considers potential output growth, whereas the structural deficit is based on the OG. Importantly, the time horizon over which potential output is considered is ten years, so it is considered to be less procyclical than a structural balance rule. The idea was to replace the structural-balance rule, but member states ultimately decided to use both. Member states are, therefore, required to converge towards their MTO, in terms of both the new EB and structural balance.

On the corrective arm side, the Six Pack operationalised the Treaty's debt criterion of a "sufficiently diminishing" debt level through the excessive deficit procedure. Member states with debt ratios in excess of 60% of GDP are required to reduce debt by 1/20th of the gap between the current level of debt to GDP ratio and the 60% reference annually, averaged over a three-year period. Member states can depart from the adjustment path in periods of severe stress, provided it does not threaten fiscal sustainability.

Alongside the negotiation of the Two Pack, which strengthened monitoring and surveillance, the TSCG entered into force in 2013. It committed countries to integrate the EU budgetary framework into their national law. The TSCG included a balanced budget rule, which limits the structural deficit to 0.5% of GDP or 1% if the debt to GDP ratio is below 60%. It contained the 1/20th rule, introduced in the Six-Pack regulations, and introduced an automatic correction mechanism, which applies in case the structural deficit limit is breached significantly.

Further revisions to the SGP were made in 2015, when the Commission responded to the claim of excessive rigidity of fiscal adjustment requirements. The reform aimed to make fiscal rules less procyclical and better tailored to member states' specific circumstances. The previous requirement of annual adjustment of the structural balance of 0.5% of GDP was replaced by the introduction of a range of adjustment efforts (the so-called "matrix of requirements"), ranging from 0 to 1% of GDP, depending on the cyclical conditions of the individual country, the debt level and the sustainability of the public finances.

Since 2015, the fiscal rules have contained some scope for flexibility in accounting for public investment. In particular, temporary deviations from the MTO are allowed under the so-called "investment clause", provided a number of conditions are met. This includes a negative OG or negative output growth, and that the deviation does not lead to a headline deficit in excess of 3%. Moreover, the investments need to be co-funded by the EU and need to demonstrate positive public finance and growth effects. The member state will compensate for any temporary deviation from the MTO, which is reached within four years.[22,23]

Apart from the procyclical tendencies embedded in the structural balance discussed above, some further comment is warranted on reforms in recent years.

The debt-reduction rule, if applied today, would require extraordinary and unrealistic levels of austerity in some countries. Italy, with a debt level of around 150%, would require an annual debt reduction of 4.5 percentage points, on average.[24] In regards to the MIP, the procedure entails a very large list of variables, reflecting, at least in part, the political-economic interests of major exporting member states, such as Germany, than it does economic evidence. For instance, a current account deficit of −4% is considered excessively low, but it is only when it is above +6% that it is considered excessively high. There is also ambiguity as to the relationship between the MIP and the fiscal rules. The processes of fiscal and macroeconomic monitoring are separate, but recommendations for one can clearly affect the other.[25]

A similar point can be made with regard monetary policy. Greek bonds were largely excluded from pre-Covid-19 rounds of quantitative easing, which contributed to the enormous fiscal pressure it experienced through the crisis years. ECB purchases were, at that stage, based on member states' capital keys, broadly in line with GDP. In July 2022, the ECB introduced the "transmission protection instrument", enabling country-specific purchases. While not

necessarily bad, the process appears to lack transparency and could have very large fiscal implications.

Recent reform directions

On 9 November 2022, the Commission published a communication on reform of the EU economic governance framework.[26] It set out a number of general or high-level proposals to reform the fiscal rules in lieu of further proposed reforms in 2023. The document acknowledges the need for reform in light of Covid-19 fiscal supports, the challenges of the green and digital transition, the limitations of basing rules on unobservable indicators subject to frequent revisions, and more.

The main thrust is that member states would negotiate country-specific debt-reduction plans with the Commission. For member states where debt is deemed to be high or medium risk, debt is to converge towards 60% over the course of a decade, with the 3% deficit rule also remaining in place. The procedure would be as follows: the Commission conducts an analysis and puts forward a "reference adjustment path", which constitutes the initial position. Member states then respond by proposing medium-term fiscal adjustment plans. These set out country-specific fiscal trajectories and public investment and reform commitments, not least in the area of climate change. This is then discussed and negotiated with the Commission, and later by the Council. Once accepted, annual member-state budgets then commit to implementing the planned fiscal trajectory over four years to ensure the ten year debt trajectory is sustainable. Member states can request adjustment periods longer than four years – a further three years – if underpinned by structural reforms and certain investments.

The initial reference adjustment path is informed by the Commission's debt sustainability analysis, which, the Commission emphasises, is not part of the implementation process. The principal indicator around which implementation of the adjustment plan is assessed is a net primary-expenditure rule (expenditure net of interest, cyclical welfare spending and one-off revenues). Enforcement will be achieved through annual assessments of the plan, through the EDP, and other mechanisms. Financial sanctions in the case of non-compliance are to be made "smarter", including in cases of non-compliance with investment commitments. The document recognises that high-debt member states cannot uphold the 1/20th debt-reduction rule. It also makes repeated reference to maintaining the deficit below 3% over the medium term, implying temporary deviations would be permitted, if later corrected.

The text is broad and somewhat vague, but a number of the reforms are obviously welcome. The abolition of the 1/20th debt-reduction rule is particularly so. That the main implementation indicator is to be net expenditure, as opposed to an unobservable and unmeasurable structural deficit, is also a positive move. Country-specific adjustment paths, tailored to the needs of the country, are also an improvement on one size fits all measures. Finally, allowances for green and other types of investment are very much needed.

In terms of the medium-term adjustment plans, there is a trade-off between tailored, and hence, context-appropriate, fiscal policy on one hand, and vesting non-transparent and potentially unaccountable power in the Commission on the other. The reform process raises yet further concerns about democratic legitimacy on the part of the EU. Similarly, climate

investment is poorly defined, and the criterion that reforms be "growth enhancing" leaves open the possibility of rolling back welfare entitlements, such as raising retirement ages.

In April 2023, the Commission released another document outlining further reforms, and refining and adjusting some of the positions laid out the previous November.[27] The basic framework of negotiated debt reduction paths remains in place. However, three new rules have been added, though additional clarity is needed about the precise details. Countries in breach of the 60% and 3% limits will have to ensure that debt is on a downward path after four years, or remains at 'prudent levels'. It is unclear what this means but it appears that debt will have to fall after four years. Net expenditure is also not to exceed the growth in potential output of the economy. For countries in breach of the 3% deficit rule, a fiscal adjustment of 0.5% per annum will be required. For countries with debt below 60% and deficits below 3% the Commission will issue guidance based on the structural deficit to ensure that remains the case.

The main implementation metric will be net expenditure. However, it should be noted that the structural balance is retained for low-risk countries. The abolition of the general 1/20th debt-reduction per the November statement is retained, though it has been replaced by a 0.5% rule for high-deficit countries and a short timeframe for debt reduction.

These are significant and, it is fair to say, hawkish developments. Regarding the requirement for debt to fall, a country that had a rapidly increasing debt will not only have to arrest that increase, but ensure that after four years it is below what it was when it started the process. The net expenditure rule will likely freeze public spending to GDP, absent tax increases. It also raises the vexed question of how to measure the unmeasurable, the growth in potential output of the economy. The 0.5% of GDP adjustment, regardless of where a country is in the economic cycle, may well end up being the most onerous of them all.

Whether one considers the November plan or the more recent refinement, much will hinge on the initial reference adjustment path and the debt sustainability analysis underpinning it. The reformed rules will be a variant of the EU's existing debt sustainability analysis framework, which is used to estimate the development of the debt-to-GDP ratio based on primary spending, interest rates, economic growth and inflation. Growth is based on Commission projections and inflation is assumed to converge to 2%, the ECB target. The primary balance includes estimates of age-related spending based on demographic projections and includes estimates of the structural primary balance. This, as we have discussed, suffers from severe measurement problems. Moreover, if later iterations for the reform propose that net primary expenditure be based upon the potential output growth, this too could be problematic, given the measurement difficulties already discussed.

Van Dijk et al. note that the estimate of interest expenditure depends heavily on assumptions about future interest rates.[28] Future interest spending is, in turn, based on projections of the risk-free rate, term premia and the spread over the risk-free rate. For these, the EU uses market expectations for the coming ten years, therefore, avoiding direct assumptions about EU-institution behaviour and monetary policy. However, market expectations embed beliefs about ECB behaviour. Similarly, if the EU deems debt to be sustainable, then this can feed back into market beliefs. In other words, the behaviour of EU institutions, and not merely the underlying economic dynamics, can influence the sustainability of member states' debt. Finally, small tweaks to interest or growth assumptions can generate

large swings in the estimated trajectory of the debt to GDP ratio.[29] The initial sustainability analysis, which sets the tone for subsequent negotiation, is subject to considerable uncertainty

In summary, the European fiscal framework has become increasingly complex. According to the SGP, government deficits should not exceed the ceiling of 3% and debt should not exceed 60% of GDP ratios. If debt is higher than the 60% threshold, the debt reduction rule requires countries to reduce the difference by, on average, 1/20th annually. Member states are deemed compliant with the SGP when certain requirements are met. Member states are required to reach a country-specific MTO. Originally, the structural deficit was not to exceed 0.5% (or 1% if the debt ratio is below 60%), but this was subsequently refined with a range of adjustments, depending on the state of public finances. The net EB means that countries' expenditures should not exceed potential output growth. Deviations from the MTO are allowed for public investment and structural reforms, under certain restrictive conditions. Through the different revisions, the rather simple regulatory framework of the SGP increasingly became more complex, sophisticated and less transparent. More details were added to the rules, as well as more exceptions designed, giving greater discretion to European institutions. The communication in late 2022 builds on this by indicating it will provide greater sensitivity to member states' national contexts and investment needs. The April 2023, rolled back some of the commitments by re-inserting strict quantitative metrics, though negotiated debt reduction trajectories are to remain in place.

Public finance sustainability

This section looks at various issues surrounding public finance sustainability. It argues that the emphasis given to debt and deficits in the current fiscal rules is unwarranted, particularly given the structural fall in interest rates. It then looks at the debt-servicing burden and compares it to the traditional debt and deficit metrics. It finds that debt and deficit perform no better for debt servicing at predicting financial stress and, if anything, are inferior.

Debt accumulation – should we care?

The current make-up of the fiscal rules puts great emphasis on the level of debt, particularly gross debt. The level of (gross) debt is not only a key benchmark in and of itself, but it is also a key anchor for other metrics in the fiscal rule set. The speed of debt reduction depends on how far a country is from the 60% benchmark, and the allowable structural deficit also depends on whether a country is above or below the threshold. The debt level is a key consideration in allowing a potential relaxation of the rule set, such as through the investment rule. It is, therefore, of utmost importance that debt benchmarks are grounded in sound economic principles.

The level of debt is, however, a poor guide to public financial sustainability. It says little about how onerous it is to repay the debt.[30] When the principal payment on a debt comes due, governments typically do not draw down or use their cash balances to repay the obligation. More commonly, they "rollover" the debt, issuing new debt to repay the old. Similarly, this new debt is likely to be rolled over in the future, and so on. It is, therefore, not so much the level of debt or size of the deficit per se that imposes an economic cost, but the burden of

servicing that debt. This is more the case with public debt than private, especially individual debt. Governments, unlike people, effectively live forever, so can continuously rollover payments.

The level of debt is a particularly poor guide to public financial sustainability in an era of low interest rates. As interest rates have fallen over the last number of decades, countries have been able to run deficits and sustain higher and higher levels of public debt. Historically, countries that sustained high levels of debt were likely to run afoul of financial markets, but that is much less so today.

This can be seen in Figure 1. It shows the evolution of the debt-to-GDP ratio and interest payments relative to GDP in a selection of Europe's economies. Interest payments relative to GDP proxies the burden of servicing debt, but it excludes interest payments received by states. These can arise through state investment in financial assets, including through central bank holdings of government bonds and other financial instruments. Moreover, inflation can erode the value of debt and the payments to service it. Nominal interest payments relative to GDP may, therefore, understate how onerous it is to service borrowing, as it looks only at gross not net borrowing, while also excluding the impact of inflation.

Nevertheless, it shows that the relationship between debt and the (approximate) cost of servicing has broken down. This is well illustrated in Germany, where data stretch back furthest. From the early 1970s until the late 1990s, increases in debt correlated well with debt-servicing costs. After that, Germany continued to accumulate debt, but the burden of servicing it actually fell. Germany's debt is currently historically high, but the cost of servicing it is exceptionally low. Italy displays a similar pattern, although the cost of servicing debt remains elevated, as it started from a higher base.

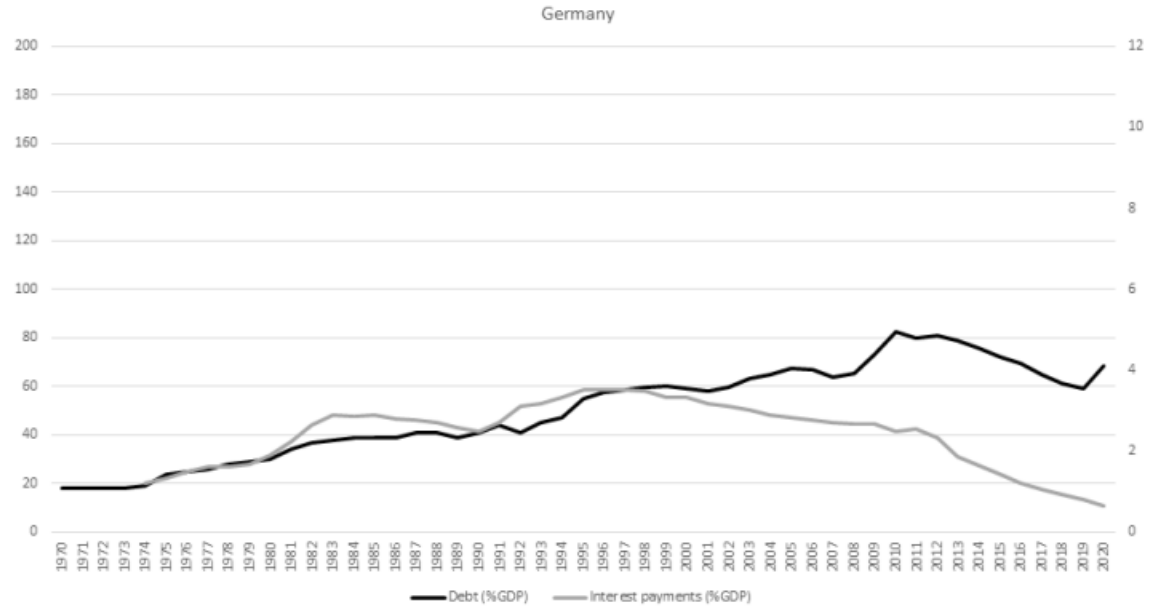
This trend of falling debt-servicing costs is not restricted to eurozone or high-income countries, as illustrated by Denmark and Romania. In Denmark, the relationship between debt and servicing costs breaks down sooner than in Germany and Italy – the early as opposed to late 1990s. Fewer data are available for the case of Romania, and it has had low levels of indebtedness in its recent history. A clear pattern of divergence between the two series is only evident in the last decade. The point remains, though, that the debt level is no longer a reliable measure of borrowing costs, a point which holds across a diversity of European countries.

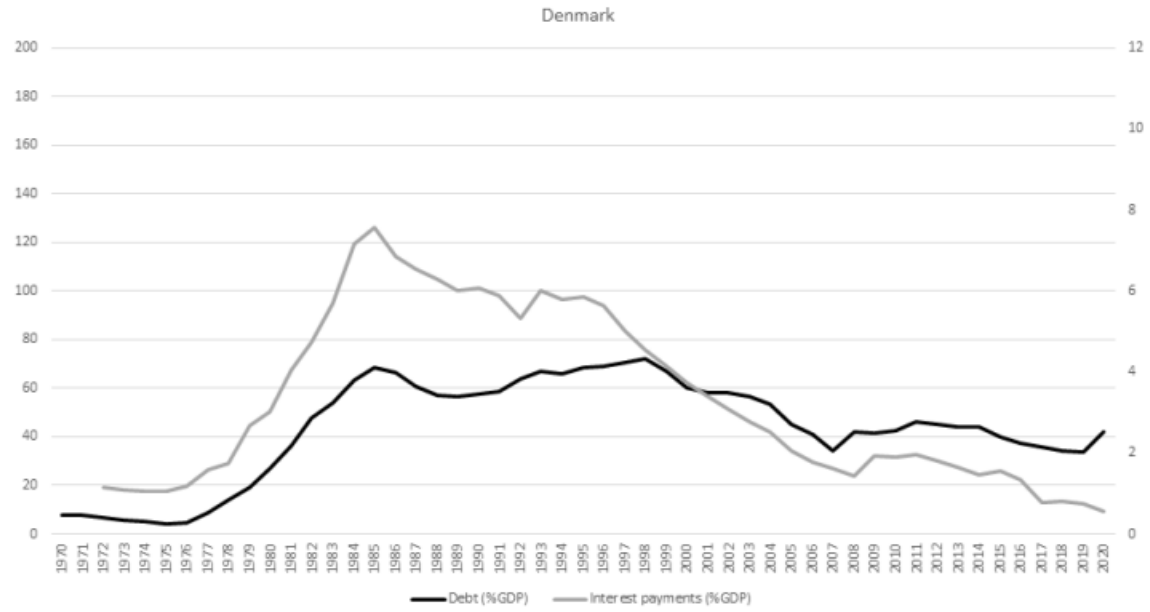
As debt is merely the accumulation of annual deficits and surpluses, or the sum of the differences between spending and revenue, the relevance of not only the level of debt is diminished under low interest rates, but also the deficit. As long as economic growth exceeds the interest rate, states are capable of running a deficit without the need to finance it with future increases in taxation. Intuitively, we can think of a deficit incurred in a previous year as a historic debt. If an economy is growing at a sufficient rate, the historical debt becomes smaller relative to the size of the economy. Moreover, it is the interest rate on borrowing that determines the rate of growth of a historic debt in monetary terms, so if the interest rate is small compared to output growth that debt as a share of output falls over time.

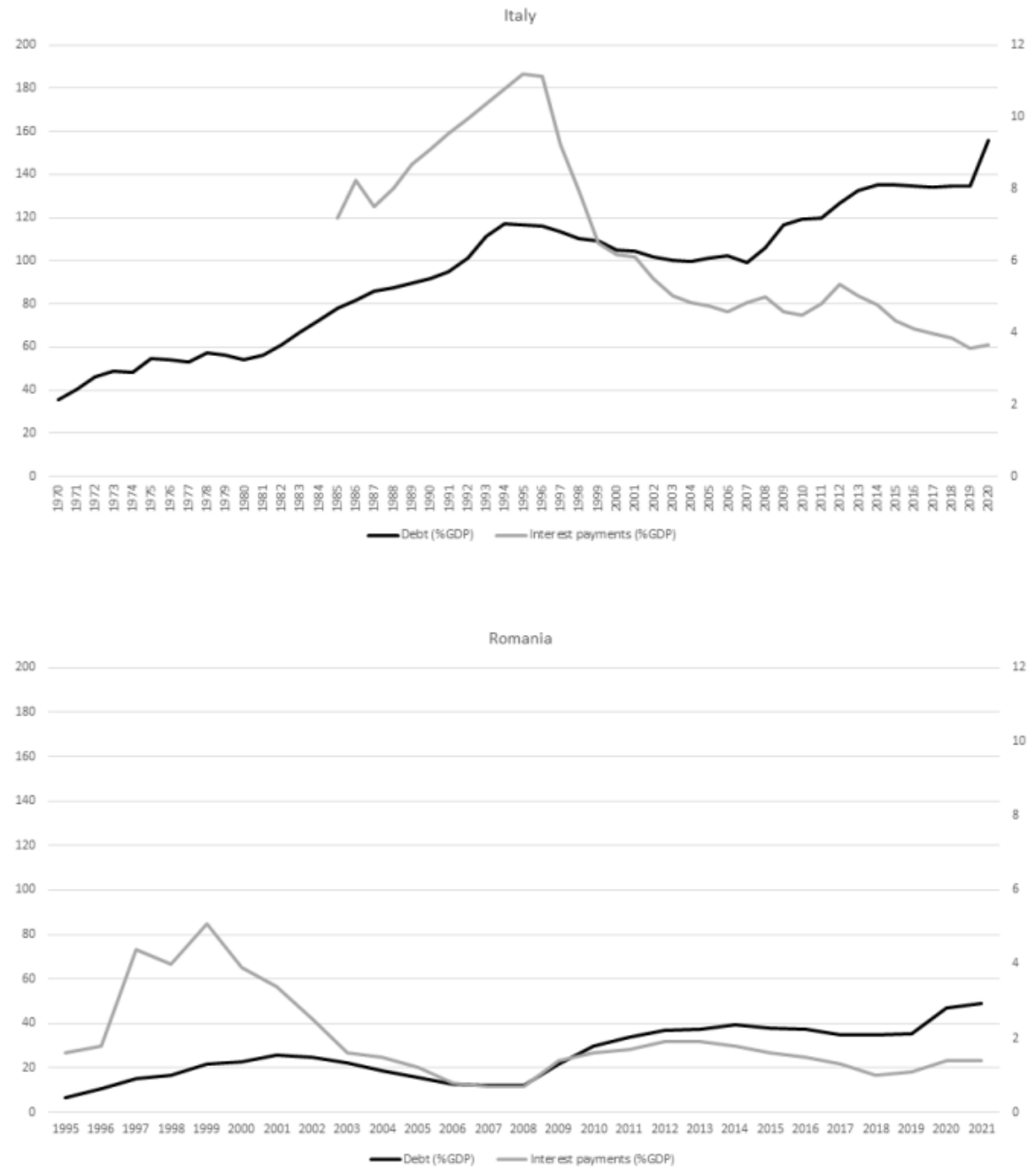
The reasons why interest rates have been able to fall without overheating the economy or inducing inflation are contested. The fact that inflation had not been induced by successive reductions in the policy rates suggests a shortfall of demand. An ageing, slowly growing, or even declining, population has less need for investment, in both machinery and housing.[31,32] A

similar point is true when an economy has completed urbanisation. The move toward an intangible economy may also depress the need for fixed capital investment.[33] On the consumption side, older people save a greater share of their income which, similar to the decline in investment leaves a shortfall of demand.[34] The same is true of rising income inequality given the lower propensity to consume among the rich,[35,36,37] whereas the decline in worker bargaining power means that inflation is less likely in general and when unemployment falls in particular.[38]

Figure 1. Debt and the debt burden in the EU.







Source: IMF Government Finance Statistics, Eurostat and Macrofinance Lab.

On the financial side, there is a greater demand for safe assets, which pushes sovereign and other bond yields down.[39,40] This may be partly due to societal ageing and the growth of institutional investors, such as pension and insurance funds. In that case, lower interest rates on government and other bonds are the flipside of an investment shortfall, independent of a monetary-policy-induced fall in rates. The demand for safe assets may also be a result of financial regulation, including post-financial-crisis banking regulations.[41,42] Finally, a greater risk aversion among investors may lead them toward safe assets, such as sovereign debt, and away from risky assets, such as equity.[43]

Whatever cause or constellation of causes is identified, notwithstanding the recent high levels of global inflation, low interest rates are likely to be here for the foreseeable future. Importantly, many advanced European countries are likely to suffer from structural shortfalls of demand. This is likely to lead to high levels of unemployment and absent fiscal expansion. While public investment in constant-price terms may be steady over the last number of decades, higher deficits and higher levels of public investment are now warranted to maintain demand, independent of the need to transition toward environmentally sustainable economies.

Inflation, rising interest rates and public debt sustainability

The Russian invasion of Ukraine marked a return of inflation after a decade or so of price increases below central banks' targets. The ECB raised interest rates four times in 2022 alone, driven by extraordinary increases in gas and energy prices. Interest rates have increased another four times in 2023. Other central banks in Europe and across the world have pursued similar monetary tightening. With monetary tightening, government bond yields of all countries have increased, but the increase has been most pronounced in highly indebted countries, such as Italy and Greece.[44]

The first thing to note is that inflation is expected to be temporary. The latest forecast predicts inflation to continue to decline through the remainder of 2023 and into 2024.[45] Similarly, ECB interest rates are expected to peak toward the end of 2023 and then decline.[46] The growth-interest differential, even if it were to become unfavourable, would not do so for long.

Significantly, higher interest rates on new borrowing do not necessarily translate into a higher average interest rate on government debt, which is the relevant metric for sustainability. If a government locked in long-term funding when interest rates were high, the rates at which they are now refinanced may be higher than what they were, say, two years ago, but could still be lower rates than the rates at which they borrowed two decades ago. Darvas shows that the average interest rate on government debt continued to fall in both Italy and Germany during 2022.[47] It is expected to continue to fall in Italy up to 2027, whereas it is expected to plateau in Germany. With economic growth expected to be positive in the coming years, the continued decline in interest rates should not translate into unsustainable debt.

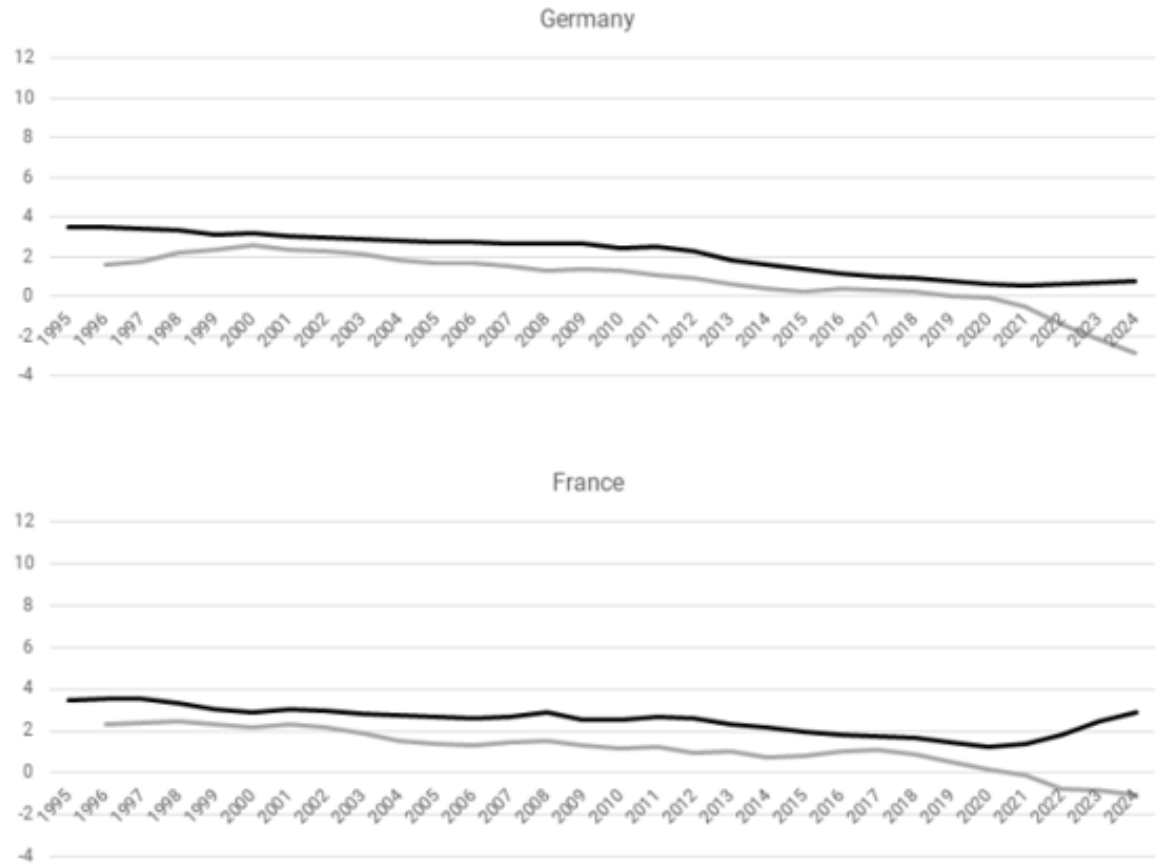
Darvas looks at changes in the forecasted 2026 debt-to-GDP ratio between April 2021 and April 2022 forecasts among 13 EU countries.[48] He decomposes the change into six components: interest rate changes; GDP deflator changes;[49] real GDP changes; tax rate changes; primary-expenditure changes; and stock-flow adjustment changes. The later forecast sees a smaller 2026 debt-to-GDP ratio in ten countries, compared to the previous forecast, and a higher ratio in three countries. Higher than expected interest rates tend to elevate projections of debt, but it is higher than expected primary expenditure that is forecasted to put the most pressure on debt. Nevertheless, this is somewhat offset by changes in the tax rate and real growth. However, it is higher inflation that tends to bring down debt the most, almost completely offsetting higher expected debt due to higher spending.[50]

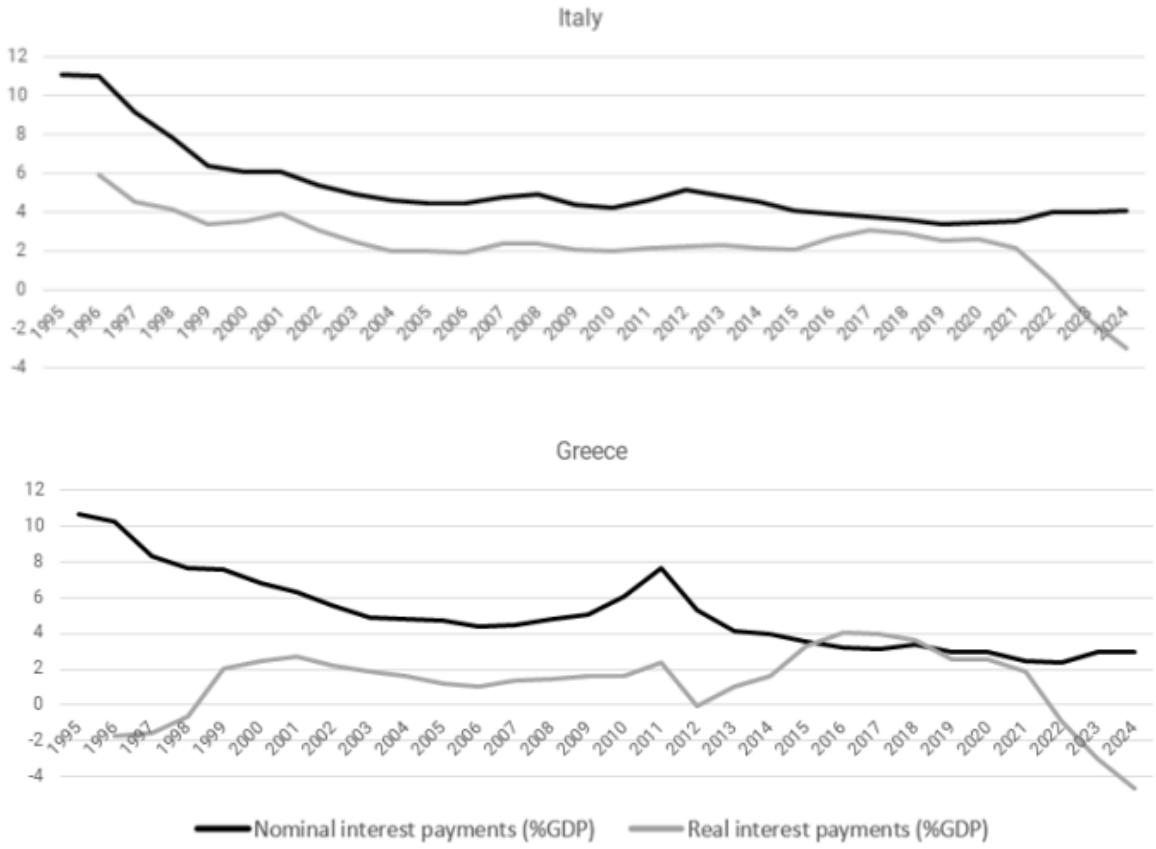
In terms of the debt-servicing burden, the advantages and disadvantages of which will be explored more fully in the following section, inflation can also offset the effects of rising interest rates. This is because inflation erodes the value of the interest payment and,

importantly, erodes the value of the accumulated debt. Effectively, when inflation rises faster than interest rates, the overall burden of servicing debt, interest payment plus principle, falls in real terms. For this reason, Furman and Summers favour the use of the real interest payments to GDP ratio in measuring the burden of servicing debt.[51]

Figure 2 compares the nominal debt servicing-to-GDP ratio with the real debt-servicing to GDP ratio. Along with France and Germany, the EU's two largest economies, we present trends for Italy and Greece, the two most indebted economies. Following Furman and Summers, we measure inflation as the rolling average change in the consumer price index for the previous five years. This has the effect of smoothing large increases, so that real debt service is understated in years in which inflation has spiked, but overstated in the years after the spike has passed. Data for 2022-2024 are based on 2022 autumn EU Commission forecasts. Nominal and real interest payments are, for reasons of data availability, presented on a gross basis.

Figure 2. Real and nominal debt-service burden (% GDP).





Sources: Eurostat and OECD.

In all countries, aside from Greece, the nominal and real debt-service burdens move in tandem until 2021, after which time the two series diverge. The co-movement reflects the generally stable rates of inflation countries have experienced for two and half decades. That the series are generally not far apart reflects the fact that inflation has also been low, in line with national central bank and ECB policy. Greece is the exception, as, long before the recent bout, it had both severe inflation problems and high debt through the 1990s. Real debt service was higher in Greece post-financial crisis due to negative inflation.

Since the return of inflation from 2021 and beyond, the trend in nominal debt service changes little, except for in France, where it increases considerably. In all four countries, real debt servicing falls markedly and, in fact, turns negative. The decline in debt service on a real basis has been most pronounced in Greece and then Italy. This is more a result of higher accumulated stocks of debt than it is higher inflation or GDP growth. With higher stocks of debt, the erosion impact of inflation is magnified. The main point is that, as with the debt-to-GDP ratio, understanding the impact of higher interest rates in recent times needs to be considered jointly with the impact of higher inflation.

Beyond debt and deficits: servicing debt and other issues

Given that it is not the level of debt, but the current and future repayment of debt, that imposes a cost on the economy, and that debt levels and debt-servicing burdens have been diverging, the conclusion would appear straightforward: one should focus on trends in debt servicing as a

guide to public financial sustainability. While we agree that this is a sensible strategy, the conclusion is complicated by a number of factors. These relate to how to correctly measure and forecast debt servicing, what constitutes an unsustainable trend in public finances, and how to control for an inevitable plethora of confounding factors, not least of all political economy factors and monetary policy.

What constitutes debt sustainability is an open question. The original rationale for 60% came from the average debt levels among EU countries at the time, and required nominal economic growth to be an unrealistic 5%.[52] Given the vastly different macroeconomic circumstances today and likely into the future, and the arbitrary principles upon which the original debt and deficit targets were based, they are clearly not fit for purpose in the current environment.

The recent history of sovereign stress and sovereign crises may provide an insight into what level of debt is unsustainable. But like debt sustainability, what constitutes a sovereign debt crisis is also open to interpretation. The European Systemic Risk Board compares its classification of crises over the last 50 years with the IMF database.[53] It finds significant but ultimately incomplete overlap. Moreover, countries may adopt fiscally unsustainable policies, but ultimately avoid a sovereign debt crisis through fiscal austerity or perhaps through debt monetisation and inflation.

Assuming a reliable definition of sovereign debt and crisis can be agreed upon, there are other complicating factors that prevent future sovereign debt problems being predicted from the soundness or not of a country's fiscal policy. International factors, such as unfavourable trade developments, war and natural catastrophes, can derail a seemingly sound fiscal stance. Similarly, banking and other types of financial crises can quickly morph into sovereign debt crises. Ireland, for instance, ran budget surpluses and had among the lowest low levels of indebtedness in the EMU during the 2000s. It later underwent a sharp sovereign debt crisis, as it experienced a severe recession and recapitalised its banks. While fiscal rules attempt to address this through examining structural budget deficits, as discussed, these are unobservable.

A related complicating issue is monetary policy, which was unaccommodating during the financial crisis and which EMU member states only influence rather than control. Under most monetary systems, it has typically been understood that central banks will intervene and purchase their state's debt when it comes under pressure from financial markets, especially when an increase in yield is unrelated to a country's underlying fundamentals.[54] This has not been the case throughout most of the EMU's history. For instance, Spain had somewhat more favourable debt and deficit dynamics than the UK in 2011. Spain, however, quickly found itself mired in crisis, as the ECB, unlike the Bank of England, refused to commit to purchasing sovereign debt with sufficient force to bring yields down.[55] Ultimately, Spain experienced a sovereign debt crisis, but the UK did not. Again, while this may ultimately manifest itself in rising debt-servicing costs and higher levels of debt, the prior trajectory of debt dynamics may be a poor predictor of sovereign debt stress, especially if there is uncertainty around a central bank's commitment to intervene.

In dealing with a crisis, countries excluded from international financial markets may resort to so-called financial repression.[56] This refers to a wide set of potential policies aimed at reducing borrowing costs, including compelling domestic banks to hold government bonds. The central bank may also purchase government bonds, which, while containing borrowing

costs, can induce inflation later on. In that case, debt and debt-servicing dynamics may not only fail to predict financial stress, but could even fail to identify an ongoing crisis. These options are, of course, unavailable to eurozone countries but should be borne when drawing on international evidence linking debt, deficit and servicing dynamics to fiscal sustainability.

Countries may try to forego default, restructuring or international assistance, despite a sharp deterioration of financing conditions, such as a large rise in interest rates. A country that has locked in enough funding to fulfil its near-term obligations may see if the rate increase is temporary. If the increase is likely to be permanent, long-term funding enables a country to take corrective action through higher taxes or reduced spending, improving its creditworthiness. Otherwise, it would have to go to the markets and borrow at high rates, and undergo a sharper and perhaps larger consolidation. The length, maturity or duration[57] of a country's borrowing is, therefore, an important consideration that can temper the costs of servicing debt that an adverse shock would otherwise have. A country will have to refinance its debt at some stage, so it cannot fully insulate itself from rises in interest rates. Still, the maturity of European and advanced-country debt has steadily lengthened over the last number of decades.[58,59]

Other factors to consider are the investor base and the share of fixed versus floating debt that a country has issued. If a country has a high share of foreign investors versus domestic investors, the country may be more vulnerable, as foreign investors may be quicker to sell. Countries with a high share of foreign denominated debt, such as emerging-market EU countries that do not use the euro, may be vulnerable to currency movements. Finally, variable-interest rate debt renders a country vulnerable to changes in interest rates, not only through refinancing but on the price of servicing its historic debt.

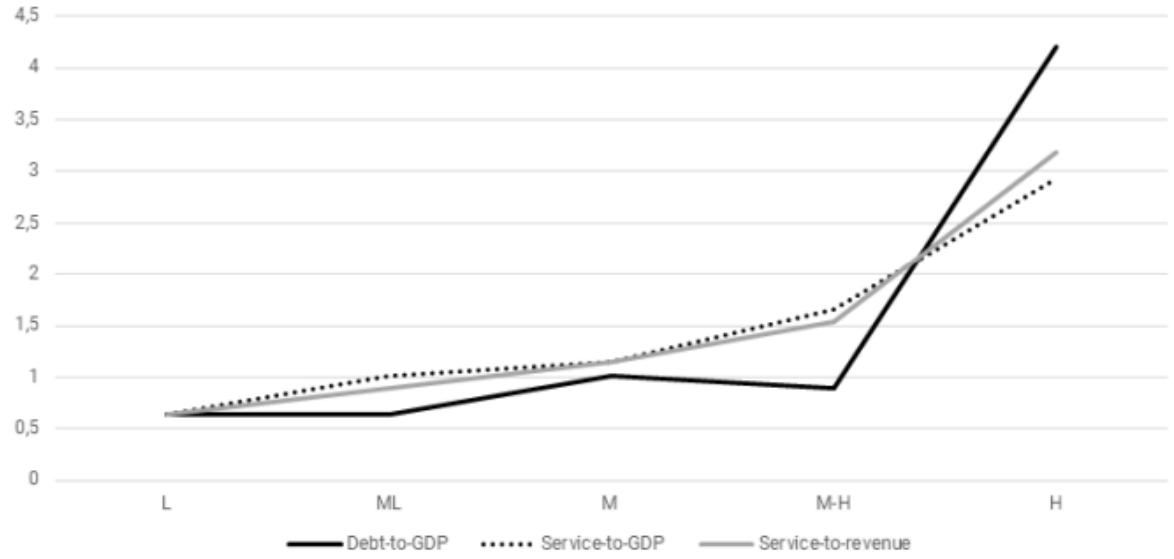
Debt and debt service as predictors of financial stress: descriptive statistics

Before looking at how different metrics perform, some comments on how to define debt servicing are warranted. The nominal interest payments to GDP ratio is perhaps the most commonly used metric. The real interest rate to real GDP ratio is favoured by Furman and Summers as being more meaningful, in that it accounts for inflation.[60] Another candidate is the interest payments to revenue ratio. This may be favoured as it points to the share of resources available to the government being used to service debt, within a government's ability and willingness to tax its society.[61] This could be superior to interest payments to GDP if a government's willingness or ability to generate revenue or tax to service its debt is weak.

With these caveats in mind, Figure 3 looks at EU member states' financial sustainability since the 1970s. It plots the percentage frequency that a country has experienced a "sovereign episode" against the level of public financial stress. It looks at three different measures of stress or financial sustainability: gross public debt-to-GDP ratio; nominal interest payments to GDP ratio; and nominal interest payments to government revenue ratio. It divides financial stress data into quintiles: low; medium-low; medium; medium-high; and high. The threshold for a country in a given year being in the bottom quintile for debt-to-GDP ratio is 29.8%, beyond which it is in the medium-low group. The threshold for it being in the medium-high quintile group is 83.8%, beyond which it is grouped as highly indebted. A value of 60% of GDP is in

the medium-indebtedness group. The respective figures for interest payments to GDP are 1.1% and 4.5%, and for interest payments to revenue are 2.9% and 10.5%.

Figure 3. Sovereign debt episode frequency and financial sustainability.



Sources: Debt, interest payments and revenue data are taken from IMF Government Finance Statistics, Eurostat and Macrofinance Lab. Sovereign episode data are taken from Lo Duca et al. (2021), Laeven and Valencia (2020) and BFFSS (2022).

A country is deemed to have undergone a sovereign episode if it meets any one of a number of criteria. The criteria are (1) experienced a sovereign debt crisis, according to Lo Duca et al.;[62] (2) experienced a sovereign debt crisis or sovereign debt default or restructuring, according to Laeven and Valencia;[63] (3) experienced domestic or external debt default or restructuring, according to BFFSS;[64] and (4) experienced an inflation crisis, according to the BFFS project.[65] If any member state in any given year experienced any one of these, then that member state is categorised as having experienced a sovereign episode in that year.

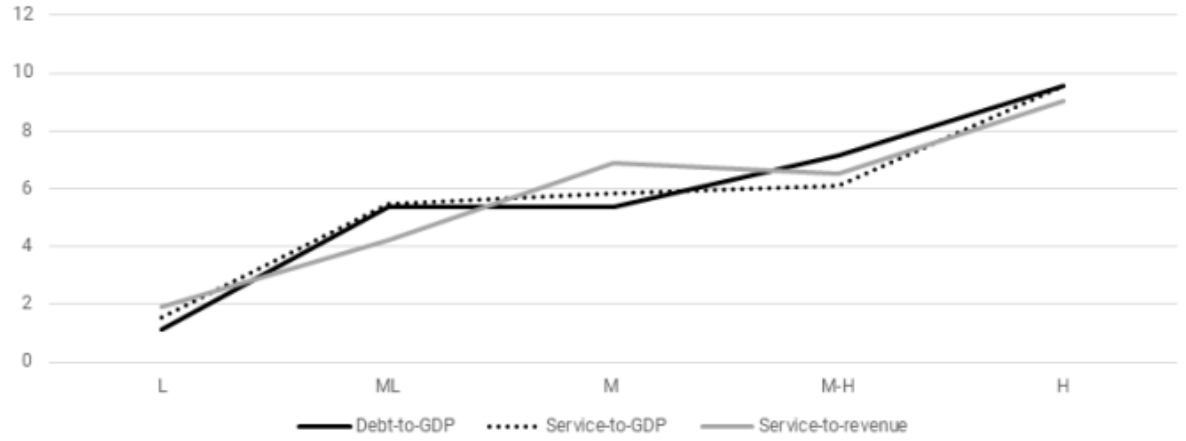
We see that the three measures perform similarly. The sovereign episode frequencies for low levels of debt-to-GDP, low debt service-to-GDP and low debt service to revenue are all 0.6%. This means that since the 1970s, when countries have had low levels of indebtedness, for instance, in 99.4% of cases, the countries have not experienced a sovereign debt episode. We see that high levels of debt are more hazardous than low levels of debt, as there is a big jump between medium-high and high levels of debt. This is not to say that high levels of debt are more hazardous than high levels of debt servicing. Rather, it is that the move from medium-high to high levels of debt entails greater risk than the corresponding move on the debt-servicing measures – the debt servicing measures already had elevated risk as medium-high levels of servicing.

This suggests that developments in debt servicing are likely to provide an earlier warning. Interestingly, both interest payment to GDP and interest payments to revenue increase monotonically (or steadily) with respect to frequency. Medium levels of debt would appear to

be more benign than medium-high levels of debt. This hints that debt developments are a somewhat less reliable predictor of future stress.

Figure 4 repeats the above exercise but adds one more criterion: whether a country is engaging in fiscal consolidation. The rationale is that a country could have pursued unsustainable fiscal policies but avoided a sovereign episode, as defined above, by engaging in austerity.

Figure 4. Fiscal episode frequency and financial sustainability.



Sources: Debt, interest payments and revenue data are taken from IMF Government Finance Statistics, Eurostat and Macrofinance Lab. Sovereign episode data are taken from Lo Duca et al. (2021), Laeven and Valencia (2020) and BFFSS (2022).

The literature identifies fiscal consolidation using two approaches: the traditional approach and the narrative approach.[66] The traditional approach defines a fiscal adjustment as an improvement of the cyclically adjusted primary balance in excess of a chosen threshold, in our case, in excess of 0.5% of GDP for two consecutive years, as per Afonso and Alves.[67] The narrative approach is based on the study of historical documents to identify fiscal adjustment episodes. It examines announced budget plans and national laws, and detects measures and actions aimed at deficit reduction, as described in policy documents.[68] When either of these criteria is met, a country is deemed to have undergone fiscal consolidation. When a country in a given year fulfils any of the criteria in Figure 3, or undergoes either measure of fiscal consolidation defined here, it is deemed to have undergone a fiscal episode in that year.

We see that the three measures perform very similarly. The sovereign episode frequencies for low levels of debt to GDP, low debt service to GDP and low debt service to revenue are all near 2%. This means that since the 1970s, when countries had low levels of indebtedness, for instance, in 98% of cases, countries have not experienced a fiscal episode. In around 9% of cases of high levels of stress, across all three measures, countries experience a fiscal debt episode.

The interest payments to GDP ratio is now the only measure that increases monotonically with respect to episode frequency. Each increase in level, as we move from low to high, results in an elevated level of risk. In contrast, medium levels of interest payments to

revenue appear to be more benign than medium-high levels, whereas medium-low levels of debt appear more benign than medium levels. This hints at greater reliability of the debt service to GDP ratio.

In summary, emphases on debt and deficits do not capture the cost of borrowing, especially in an era of low interest rates. Conceptually, the debt servicing burden coupled with considerations about the composition of debt are more meaningful indicators. Despite this, the fiscal rules attach central importance to debt and deficit. The descriptive statistics presented in this section indicate that debt is not a better guide to financial sustainability and may, in fact, be inferior.

Predicting crisis: an econometric analysis

This section provides an empirical analysis aimed at identifying the variables that best act as leading early warning signals for public finance sustainability stress. It examines the determinants of the probability of stress econometrically and finds that the debt-servicing burden is a more powerful predictor of financial unsustainability than the deficit or debt.

Model and data

Safeguarding fiscal sustainability and preventing a crisis are among the main concerns of policymakers. Our contention has been that it is the burden of servicing debt and not the level or increase in the level of debt that is of relevance for financial sustainability. Conceptually, it is not debt per se, which can be rolled over, that imposes a burden, but the resources devoted to servicing it. The descriptive statistics in the previous section also suggest that debt service is a better predictor of sovereign stress.

A number of studies have investigated various episodes of crisis and/or financial distress, with the aim of drawing policy lessons, addressing vulnerabilities and limiting them. The literature has provided different criteria to identify the occurrence of a crisis and has developed different methodologies for detecting the risk that a crisis may arise.[69] Those methodologies are represented by the signals approach;[70,71,72,73] discrete choice models, i.e., logit models[74,75,76,77] and machine learning techniques.[78,79,80]

To study the effects on the probability of crises, our model relies on a crisis indicator as the outcome variable and uses it to model the probability of an episode of distress conditional on public debt, public deficit and debt-servicing burden. In each period, countries are either experiencing a crisis or they are not. Data are in annual frequency and were collected using various sources, as in the previous section. Three hundred episodes are detected in the sample, 133 of which took place after 2008.

The first independent variable is the debt-to-GDP ratio; the second is the primary balance, which excludes the interest payment component of the deficit or surplus; and the third variable is interest payments. All three are expressed as percentages of GDP. The model can be written as:

$$SE = \beta_0 + \beta_1 DEB + \beta_2 PB + \beta_3 INT + u \quad (1)$$

Where SE denotes sovereign episode, which takes a value of zero if there is no episode and one if there is. DEB, PB and INT denote debt, primary balance and interest payments to GDP ratio, respectively. We expect all coefficients to be positive, meaning, as they increase, the likelihood of an episode increases. The model estimates the probability of a sovereign crisis episode using a logit model, also known as logistic regression.

Results

Coefficients from logistic regression belie straightforward explanation, but can be transformed to give meaningful interpretations. Table 1 illustrates the derived marginal effects, which give the change in the probability of an event for a given change in an independent variable. A positive (negative) coefficient means that higher levels of the associated macroeconomic indicator increase (decrease) the probability of an event.[81]

Table 1. Conditional probability of a sovereign episode.

	Marginal effects	OR	LPM
Debt to GDP ratio	0.034***	1.035***	0.002***
	(0.006)	*(0.006)*	*(0.000)*
Primary balance	−0.192***	0.825***	−0.012**
	(0.050)	*(0.041)*	*(0.004)*
Debt-servicing burden	0.343***	1.410***	0.011*
	(0.10)	*(0.152)*	*(0.031)*
N	*846*	*846*	*846*
Chi²	*46.58****	*46.58****	
F-test			*27.04****

Sources: Debt, interest payments and revenue data are taken from IMF Government Finance Statistics, Eurostat and Macrofinance Lab. Sovereign episode data are taken from Lo Duca et al. (2021), Laeven and Valencia (2020) and BFFSS (2022).

Note: ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

The model appears well specified. The chi-squared test shows the joint significance of the regressors and rejects the hypothesis that the coefficients are jointly equal to zero, at 1% significance level. The logistic regression coefficients are highly significant and present the expected signs.

The logistic regression confirms evidence emerging from the descriptive statistics presented in the previous section. The likelihood of a sovereign episode increases as the level of debt increases. In particular, a one percent increase in the debt-to-GDP ratio increases the probability of a sovereign episode by almost 0.034%, holding other variables constant. A percent increase in the debt-servicing ratio to GDP increases the probability of an event by 0.34%, all else being equal. The likelihood of an episode falls as the primary balance increases. A one percent change increase in the primary balance reduces the likelihood of an event by 0.19%, holding other variables constant. Alternatively, a percent increase in the deficit raises the probability of an event by 0.19%.

Similar to the previous section, we also model the effects of changes in the three variables on the likelihood of a fiscal event (Table 2). This means that the dependent variable includes various measures of sovereign stress and crisis, but it also includes episodes of fiscal consolidation. The definition of an event is therefore broader.

Table 2. Conditional probability of a fiscal episode.

	Marginal effects	OR	LPM
Debt to GDP ratio	0.019***	1.019***	0.005***
	(0.004)	*(0.004)*	*(0.000)*
Primary balance	−0.068**	0.934**	−0.011**
	(0.027)	*(0.025)*	*(0.004)*
Debt-servicing burden	0.148***	1.160***	0.041***
	(0.054)	*(0.063)*	*(0.010)*
N	*846*	*846*	*846*
Chi²	*46.58****	*46.58****	
F-test			*30.85****

Sources: Debt, interest payments and revenue data are taken from IMF Government Finance Statistics, Eurostat and Macrofinance Lab. Sovereign episode data are taken from Lo Duca et al. (2021), Laeven and Valencia (2020) and BFFSS (2022).

Note: ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Again, the model is well specified, and the Chi-squared test shows the joint significance of the regressors, rejecting the hypothesis that the coefficients are jointly equal to zero at 1% significance level. The logistic regression coefficients are highly significant and present the expected signs. In particular, a one percent increase in the debt to GDP ratio increases the probability of a fiscal event by almost 0.02%, holding other variables constant. A percent increase in the debt-servicing to GDP ratio increases the probability of an event by 0.14%, all else being equal. The likelihood of an episode falls as the primary balance increases. A one percent increase in the primary balance reduces the likelihood of an event by 0.06%. Alternatively, a percent increase in the deficit raises the probability of an event by 0.06%.

Our results show that all three indicators elevate the risk of public financial sustainability stress, but that an increase in debt servicing poses a greater risk than a widening of the deficit or a rise in debt, all else being equal. The results, therefore, corroborate the previous section, which emphasised the need to focus on debt servicing.

Discussion and conclusion

This policy study has looked at arguably the most important aspect of economic governance in the EU today: the fiscal rules. It has long been recognised by economists that the main debt and deficit anchors upon which the rules are based are arbitrary, with little grounding in economic theory, evidence or insight. As the rules have evolved, layers of complexity have been added, with greater reliance on unobservable and difficult to estimate variables. This has led to more scope for interpretation, discretion and error. The rules have been repeatedly breached and have failed to prevent sovereign stress and crises. Given the reluctance of governments to cut current spending or increase taxation, the rules are, moreover, an effective barrier to expanding public investment, a prerequisite for meeting Europe's climate challenges.

As unedifying as it may be to base the central pillar of economic governance on capricious theoretical constructs, the analysis presented in this policy study goes a step further. It is not only the unobservables that are problematic, but so is the centrality given to its two founding principles: the level of debt and the government balance – a large debt that requires little service is not a drain on resources. The emphasis on debt and deficits is misplaced conceptually, and is a poor guide for sound budgetary policy. The burden of servicing debt provides a more coherent measure of public financial sustainability conceptually. The level of debt and deficit do not, in and of themselves, impose financial burdens on states. Empirically, under conditions of low interest rates the stock of debt is a particularly poor measure.

Indeed, neither the debt level nor the government balance is superior to the burden of servicing debt (scaled either by GDP or revenue) in predicting future financial stress using descriptive statistics. Econometrically, we find that the burden of servicing debt is a far superior predictor of future stress.

The fiscal rules require major surgery. Ideally the debt servicing burden would be the key anchor. An overall of the rules in which the key metrics of debt-to-GDP and the deficit were replaced by the debt servicing burden would require treaty change, an altogether unlikely proposition. Absent that, a series of minor operations are needed to meet Europe's social, economic and environmental challenges. Observable and measurable metrics are preferable to unobservable and unmeasurable ones. The European Stability Mechanism has suggested an upper limit for the debt-to-GDP ratio of 100%,143 combined with an expenditure rule and a government balance limit of 3%. A combined 100% debt target and 3% deficit target – aligned with country-specific debt-reduction plans that exclude unobservable variables and make allowances for green investment – would be a major leap forward.

The November 2022 proposals were a step in the right direction, though the revisions in April constituted half a step backward. The future form of the rules is currently uncertain and with it, the future of EU economic policy.

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81 For completeness, Table 1 also shows the coefficients of the log of the odds ratio and the traditional regression coefficients using a linear probability model (LPM). One can easily retrieve the probability of a crisis using the former. In this case, the probability of a sovereign crisis is approximately calculated as $(OR-1)\times 100$. The coefficients on the LPM also give the increase in the probability of a crisis resulting from a given change in the independent variable. Though commonly used given its simplicity, the LPM has wellknown limitations. These include the value of the dependent variable not being bounded between zero and one and the linearity assumption.