

18-10 How to Solve the Greek Debt Problem

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April 2018

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Greece's debt currently stands at close to €330 billion, over 180 percent of GDP. Almost 70 percent of this debt is owed to European official creditors, reflecting the fact that Greece has been largely cut off from private debt markets for the past eight years. Without restructuring these debts—particularly the €131 billion owed to the European Financial Stability Facility (EFSF), which financed the bulk of official lending to Greece from 2010 until 2014—Greece cannot hope to return to private funding after its financing program with the European Stability Mechanism (ESM) ends in August of this year. While Greece has tapped capital markets twice in the past 12 months, most recently this February, its ability to do so was predicated on the expectation of additional official debt relief.

The fact that Greece's public debts must be restruc-

tured is by now widely accepted. The latest debt sustainability analyses of the European Commission (EC) and the International Monetary Fund (IMF) agree on this point (EC 2018, IMF 2017). What remains controversial, however, is the extent of debt relief needed to make Greece's debt sustainable. Euro area finance ministers have all but promised more relief, subject to a debt sustainability analysis at the end of the program period, but not said how much (Eurogroup 2017). They did, however, outline the instruments that they envisage using—mainly, maturity extensions and deferred interest on EFSF loans until up to 2038, and early repayment of IMF loans using lower cost ESM funds.¹ In addition, earlier Eurogroup statements had ruled out any face value debt reductions, and implicitly any further reductions in interest rates charged by the EFSF and the ESM.²

This Policy Brief, based on a more detailed companion paper (Eichengreen et al. 2018), argues that the measures outlined by the Eurogroup will not be sufficient to restore the sustainability of Greece's debt. At the same time it shows that Greece's debt sustainability can in fact be restored without aggravating moral hazard—i.e., encouraging future governments in Greece and elsewhere in the euro area to take risks in the belief that they will be bailed out—and within the framework of EU law, in particular Article 125 of the Lisbon Treaty, which prohibits EU members from assuming liability for the debts of other members.

One option to restore debt sustainability may be to combine the Eurogroup's proposed measures with continued financing by the ESM, which offers much cheaper rates than Greece could obtain in the bond markets. But this combined effort may require continuing the program relationship with Greece for a potentially very long period, which neither Greece nor its European creditors seem willing to do. This leaves two alternatives. One would be to extend interest relief

1. EFSF interest and amortizations payments are currently deferred until 2023. Additional measures include the restoration of transfers from profits earned by the European Central Bank (ECB) and national euro area central banks based on debt service of Greek bonds held by these institutions. The Eurogroup also suggested a "growth adjustment mechanism" that would link Greece's debt service to its growth.

2. See Eurogroup (2016), which states that any measures "will be taken in line with the ESM and EFSF legal frameworks." These frameworks rule out lending below funding cost. However, the lending spread of the EFSF is already zero, and that of the ESM is just 0.1 percent.

and maturity extensions beyond the debts owed to the EFSF. The other would provide face value debt relief in a way that is consistent with Article 125.

This Brief explains how either of these additional debt relief options might work and assesses their quantitative impact. It concludes that only the latter—conditional face value debt relief, in combination with the measures already considered by the Eurogroup—would restore Greece’s debt sustainability with reasonable confidence. Furthermore, if the debt relief is structured in a way that creates incentives for additional fiscal adjustment, as is proposed in this Brief, the amount of face value debt relief required could be modest—on the order of 10 to 15 percent of the outstanding official debt.

WHY THE DEBT RELIEF MEASURES OUTLINED BY THE EUROGROUP ARE INSUFFICIENT

Debt sustainability is traditionally defined as a falling or constant ratio of debt to GDP. In addition, it has become standard in recent years to take the borrower’s “gross financing needs” into account when assessing debt sustainability. Gross financing needs are defined as the difference between scheduled debt service (interest plus amortizations), and nonborrowing sources of finance such as the primary surplus (revenue minus noninterest spending) and privatization revenues. They measure how much a country must borrow each year in order to service its debt, given its income and noninterest expenditures.

Greece’s debt sustainability can be restored without aggravating moral hazard and within the framework of EU law.

According to criteria adopted by the Eurogroup in May 2016, Greek debt sustainability requires that gross financing needs “should remain below 15 percent of GDP during the post-programme period for the medium term, and below 20 percent of GDP thereafter” (Eurogroup 2016). These criteria originate from the IMF’s debt sustainability methodology (IMF 2013). They can be thought of as experience-based rules of thumb that help predict debt crises. Countries with financing requirements above 20 percent of GDP typically find it difficult to roll over their debts, except at high interest rates, which generally implies a rising debt-to-GDP ratio in the future.

To see why Greece’s debts are not sustainable and why the Eurogroup’s proposed approach is unlikely to fix this, it is important to understand the drivers of Greece’s gross financing needs over the next several decades. Figure 1 shows the path of gross financing needs for three scenarios. In figure

1.a., gross financing needs are projected based on current debt obligations, assuming that nominal growth in Greece converges to 3 percent over the long term,³ private lending rates evolve in line with Greece’s debt ratio,⁴ and the primary fiscal surplus reaches 3.5 percent this year and stays there until 2022. After 2022 gross financing needs are assumed to decline gradually, initially to 1.5 percent in 2030 and eventually to 1 percent in 2043. A surplus of this duration and magnitude is historically unusual and hence could be considered ambitious but not unprecedented (Eichengreen and Panizza 2016, Zettelmeyer et al. 2017). As figure 1.a shows, under these assumptions, gross financing needs would nevertheless exceed 15 percent of GDP by 2027 or 2028, and 20 percent after 2032. Debt would surely be unsustainable.

Figure 1 also shows a particular decomposition of gross financing needs that helps to show why this is the case. This includes amortizations and interest payments on (1) existing debts to the EFSF and the IMF (about €143 billion at end 2017), (2) all other debts incurred by the end of 2018 (about €187 billion at end 2017),⁵ and (3) new bonds expected to be issued to private creditors after 2018. The gross financing needs are the portion of the sum of these items that must be financed through new borrowing. After 2018, any such borrowing is assumed to come from private sources, at an average cost that is much higher than that of the maturing debt, since the latter is largely owed to official creditors.⁶ For example, Greek 10-year government bond yields are currently around 4.2 percent, whereas its borrowing rate from the ESM and the EFSF is between 1.0 and 1.3 percent.

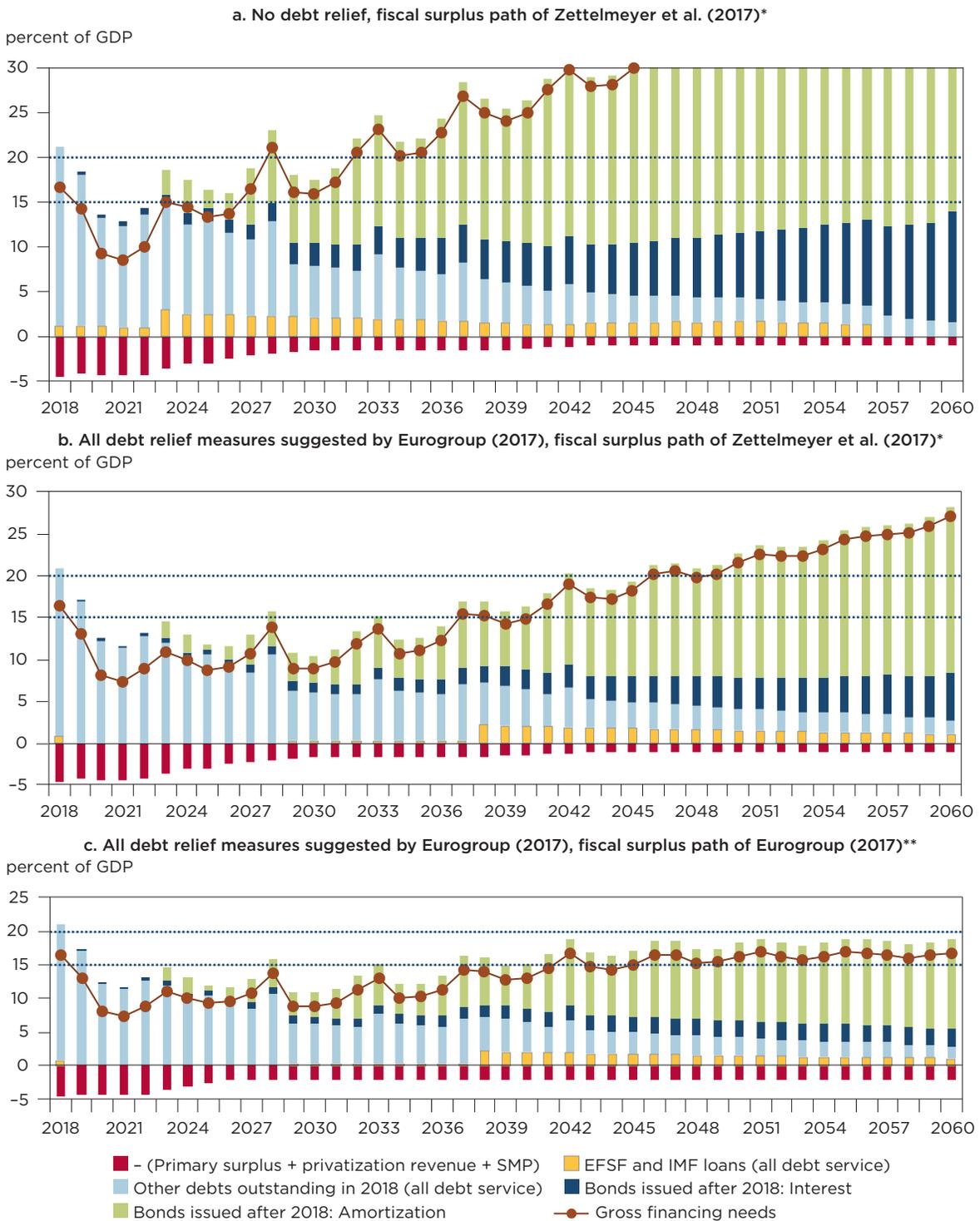
3. This corresponds to the growth path assumed by the European Commission in its “Scenario B” (EC 2018). The long-term growth assumption of 3 percent can be understood as the sum of 2 percent inflation and 1 percent real growth, which Eichengreen et al. (2018) and IMF (2017) argue is a realistic value (in part given expected demographic developments).

4. Specifically, as in EC (2018), an interest rate rule based on Laubach (2009) is assumed, in which private lenders charge a 3-basis point risk premium (i.e., 0.03 percent) for every 1 percent of debt-to-GDP ratio above 60 percent. Based on end-2017 debt levels, this implies a 380-basis point spread. Greece’s actual spread on the 10-year government bond in early March 2018 was about 355 basis points.

5. This large category includes: privately-held government bonds issued by 2018 (€38 billion at end-2017), government bonds held by the ECB and other central banks (€13 billion), Treasury bills (€15 billion), loans from the ESM (€38.2 billion, expected to rise to up to €56 billion by the end of the program), loans from the Greek Loan Facility (GLF) created in 2010 as an initial ad hoc facility to help Greece with its crisis (€53 billion), short term borrowing from local governments and social security funds (€15 billion), and other loans (€15 billion).

6. This reflects previous rounds of official debt relief to Greece. See Schumacher and Weder di Mauro 2015.

Figure 1 Decomposition of Greece's expected gross financing needs, with and without debt relief



EFSF = European Financial Stability Facility; ESM = European Stability Mechanism; IMF = International Monetary Fund; SMP = returned profits arising from the bonds held by the European Central Bank

*Primary surplus of 3.5 percent until 2022, followed by a stepwise decline to 1.5 percent by 2030. Maintained at 1.5 percent until 2038, followed by stepwise decline to 1 percent by 2043. Maintained at 1 percent thereafter.

**Primary surplus of 3.5 percent until 2022, followed by a stepwise decline to 2 percent by 2030. Maintained at 2 percent thereafter.

Note: The figure decomposes gross financing needs, defined as debt amortization plus interest owed minus the primary fiscal surplus minus privatization proceeds, into three categories of debt: bonds issued after 2018, loans by the EFSF and IMF, and all other debts outstanding in 2018. Growth, privatization, and interest rate assumptions are taken from EC (2018), Scenario B. See Eichengreen et al. (2018) for details and additional technical assumptions.

Sources: ESM/EFSF, IMF, Hellenic Republic Public Debt Bulletins, EC (2018), and Zettelmeyer et al. (2017).

As a result, even though Greece's gross financing requirements are initially not that high, they begin to exceed 15 percent of GDP from the late-2020s onward, as cheap official debt is replaced by expensive private borrowing. This requires more borrowing from the private sector, which in turn implies bigger gross financing needs. By the mid-2030s, debt service on bonds issued after 2018 overwhelm primary fiscal surpluses.

How would the sort of debt relief that the Eurogroup has in mind affect these debt dynamics? In figure 1.a, the yellow bars just above the horizontal axis represent the sum of debt service to the EFSF and IMF. This sum is initially quite low, consisting only of interest and amortization payments to the IMF, until amortization and interest payments on EFSF loans begin in 2023. Even after 2023, this item remains a fraction of total gross financing needs, which are predominantly driven by other debt categories—amortizations of bonds issued before 2018, the gradual elimination of temporary sources of financing, and the increasingly more expensive service of newly issued private sector debts.

Fully implementing the debt relief measures envisaged by the Eurogroup would boil down to eliminating almost all debt service to the EFSF and IMF until 2038. EFSF debt service would be largely deferred, while IMF loans would be repaid using long-term ESM loans. Figure 1.a suggests that this is a less than ideal debt relief instrument, since it amounts to pushing out debt service that is already relatively low. But figure 1.b shows that these measures would nonetheless have a substantial impact: Although the annual reduction in gross financing needs by eliminating EFSF and IMF debt service is not that high, it would occur at a time when the “bang for the buck” of official debt relief is high, because it reduces Greece's need to borrow from expensive private sources.

However, figure 1.b also shows that this reduction is not enough to restore Greece's debt sustainability. While gross financing needs rise less steeply than in figure 1.a, and the 20 percent threshold is crossed later, gross financing needs (and hence the debt ratio) would rise continuously, and eventually explosively, from the mid-2030s onward.

A more ambitious fiscal trajectory could contain this rise in gross financing needs. Figure 1.c shows how gross financing needs would develop if the fiscal surplus is assumed to stabilize at 2 percent rather than 1 percent of GDP, in combination with the same debt relief measures that were assumed in figure 1.b. This fiscal path is in line with the Eurogroup demands in its June 2017 statement: “a primary surplus of equal to or above but close to 2 percent of GDP in the period from 2023 to 2060.” Figure 1.c shows that this would eliminate the upward trend in gross financing needs, which would level out at just above 15 percent in the long term. Hence, *conditional on the Eurogroup's fiscal assumptions*,

its proposed measures could in fact be enough to restore the sustainability of Greece's debt.

But while the Eurogroup's approach—requiring a high primary surplus for a very long time and allowing relatively little debt relief—is *internally* consistent, it is not, unfortunately, consistent with international experience (let alone Greece's fiscal track record). Based on a broad sample of emerging-market and advanced countries in the post–World War II period, Zettelmeyer et al. (2017) conclude that the probability of observing a continued spell of primary surpluses above 2 percent drops to zero after about 15 years. The Eurogroup is suggesting more than 40 years, from 2018 to 2060. Forty-year spells with *average* primary surpluses of 2 percent have occurred, mostly in emerging-market countries, but even they are very rare—and, depending on their profile, may not in fact be enough to achieve sustainability. This finding echoes earlier similar ones by Eichengreen and Panizza (2016). IMF (2017) reaches the same conclusion after examining individual high debt cases in more detail.

To conclude, the assumptions under which the measures proposed by the Eurogroup might deliver debt sustainability are not plausible. Hence, even with full application of these measures, Greece's debt cannot be considered sustainable with any degree of confidence. Under even slightly less ambitious (but still quite stringent) assumptions, gross financing needs and debt will eventually become explosive again. This conclusion is confirmed by a more elaborate analysis, in Eichengreen et al. (2018), that allows for uncertainty in Greece's growth and inflation rates.

WHY NOT JUST WAIT AND SEE?

While the Eurogroup measures are unlikely to restore Greece's debt sustainability, figure 1.b also suggests that they could keep Greece's gross financing needs within a manageable range for an extended period, well into the 2030s. Does this not provide plenty of time to postpone the final decision on the adequacy of the measures proposed by the Eurogroup? Given the uncertainties in projecting gross financing needs, would the creditors not be well advised to use this time to make adjustments as events unfold? Specifically, might it be feasible to adopt a two-stage approach, in which the Eurogroup's measures are adopted at the end of the program period, and the question of whether Greece requires additional debt relief is revisited in, say, 10 years, at a time when Greece's gross financing needs are still expected to be low?

One argument against this type of wait-and-see approach is that the expectation that Greece's debt remains unsustainable could weigh on the Greek recovery and hence become self-fulfilling—possibly accelerating a new debt crisis. However, even if one takes the growth path assumed in figure 1 as a given, the impression that the slow rise of

gross financing needs gives creditors an option to wait is misleading. Although the Eurogroup measures may maintain gross financing needs below 20 percent until the late 2030s or early 2040s, the cause for its rise—namely the shift to debts with much shorter average maturities and much higher interest rates—takes much less time to materialize. Once this happens, the future rise in gross financing needs (and eventually the debt ratio) becomes, in effect, baked into the debt structure.

The assumptions under which the measures proposed by the Eurogroup might deliver debt sustainability are not plausible.

Under the assumptions of figure 1.b, which envisages the primary surplus declining gradually after 2022, Greece would have issued over €70 billion in new, expensive bonds by 2030 (or indeed close to €90 billion, according to the IMF's more pessimistic baseline assumption, that Greece's primary surplus drops faster after 2022). Total Greek government bonds would exceed €90 billion (or close to €110 billion, under IMF assumptions). Consequently, if European official creditors were to discover in 10 years that the debt relief granted in 2018 was not sufficient after all, they would be facing very unpleasant alternatives. One would be to force Greece to undertake a new restructuring of its privately held bonds—euphemistically referred to as “private sector involvement” (PSI)—as a condition for any additional debt relief or other forms of official support. This would cut Greece off from the debt market and force it into a new extended period of dependence on official financing. Another would be to grant extra official debt relief without new private sector involvement. But such extra official debt relief would need to be massive—much higher than the extra debt relief needed to make debt sustainable today—as the official sector would in effect be repaying around €100 billion in expensive new borrowing from the private sector contracted in the meantime.

It is hard to imagine that future debt relief of this nature and magnitude could be reconciled with the no-bailout clause of the EU treaty. It would also violate the seniority of the ESM, laid out in the preamble of the ESM treaty, as it is hard to conceive of debt relief of such magnitude without the ESM taking losses. In contrast, as will be shown below, the extra debt relief that European creditors would need to grant today (over and above the EFSF-related measures outlined by the Eurogroup) to achieve debt sustainability would not need to involve the ESM and can arguably be made consistent with the no-bailout clause by making it conditional in a specific manner.

That being said, if creditors cannot or do not wish to commit to additional debt relief today, there would be a way to make the wait-and-see approach work. The ESM could continue to provide Greece with official financing at low interest rates on the condition that Greece not return to private capital markets until its borrowing costs are much lower. This approach would prevent the key problem that is likely to create the next Greek debt crisis in a decade if debt relief today proves insufficient, namely, the accumulation of expensive and rapidly rising debts to private creditors. It could also provide a framework that would increase the probability of continued reforms and fiscal prudence in Greece.

The cost of this approach, however, is that it would extend the difficult program relationship between Greece and its European creditors—potentially for a very long time. Eichengreen et al. (2018) show that, under assumptions similar to those in figure 1.b (i.e. moderate assumptions on both the fiscal path and long-term growth), Greece may require ESM financing for 20 years or more, on top of the measures suggested by the Eurogroup, to make Greece's debt sustainable.

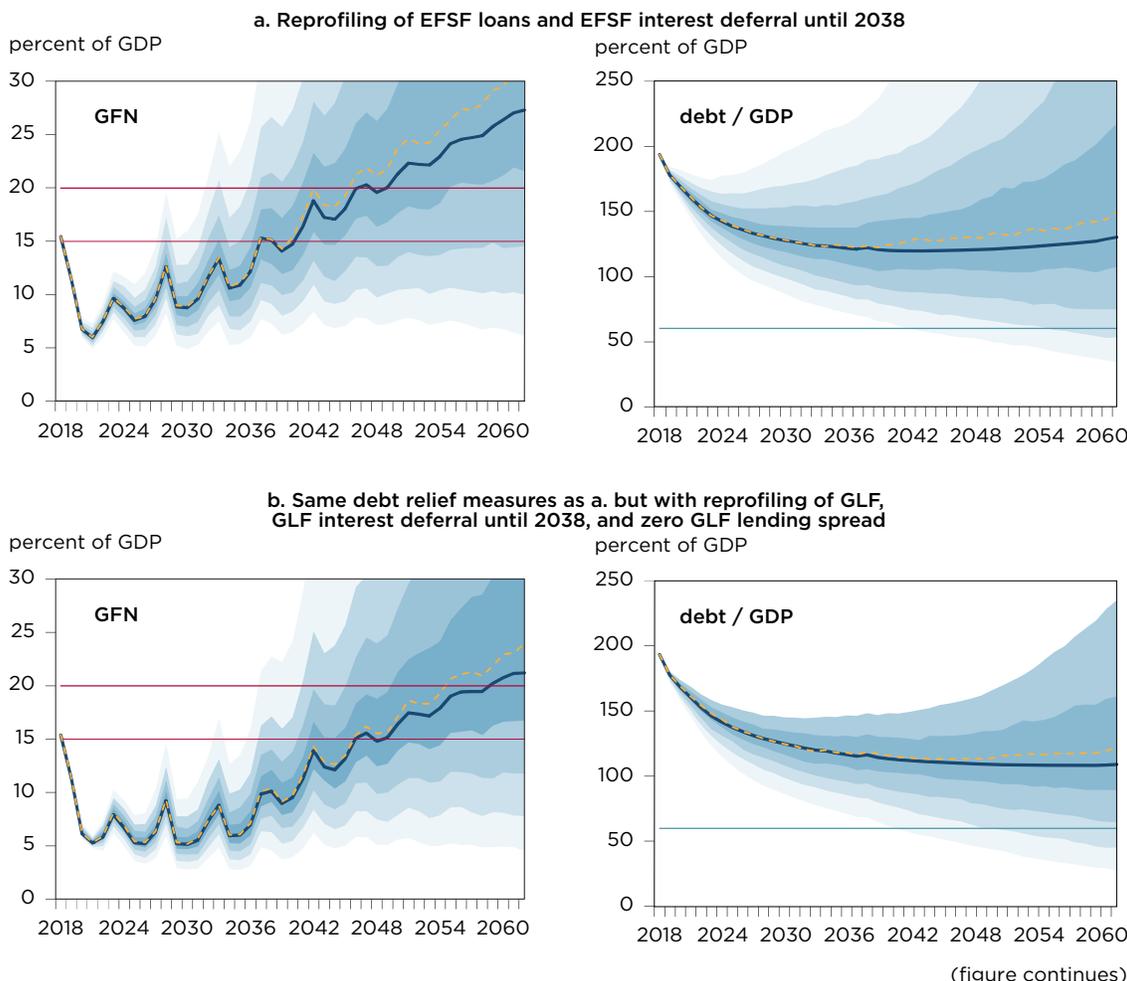
If continuing the present program relationship is not in the cards for political or other reasons, European creditors need to commit to additional debt relief at the end of the ongoing program relationship, well beyond the measures that are now on the table. The following two sections analyze two options for doing so within the framework of EU law.

BROADENING THE BASE TO WHICH DEBT RELIEF MEASURES WOULD BE APPLIED

One approach would be to stick to the types of measures that the Eurogroup is considering for the EFSF loans—in essence, maturity extensions and interest deferrals—but to extend these to official debts beyond the EFSF. Since ESM loans are both low interest and significantly long term (amortizations are scheduled to start in 2034 and end by 2060), the most obvious candidate would be the bilateral loans of the Greek Loan Facility (GLF), a lending vehicle created as part of the initial response in 2010 to the Greek crisis. Repayments of GLF loans are scheduled to begin in 2020 and end in 2041. Outstanding GLF loans amount to €53 billion (more than the ESM, which currently has about €46 billion outstanding). The GLF is also relatively expensive, with a spread of 50 basis points over Euribor rates (in contrast, the spread of ESM lending rates over its funding cost is only 10 basis points).

Figure 2 investigates the impact of extending debt relief to loans owed under the GLF, based on the same economic assumptions as in figure 1.b—in particular, convergence of Greek nominal growth to about 3 percent and a primary surplus of 3.5 percent until 2022, followed by a gradual decline to initially 1.5 percent by 2030 and eventually 1

Figure 2 Impact of Eurogroup measures and Greek Loan Facility (GLF) debt relief



(figure continues)

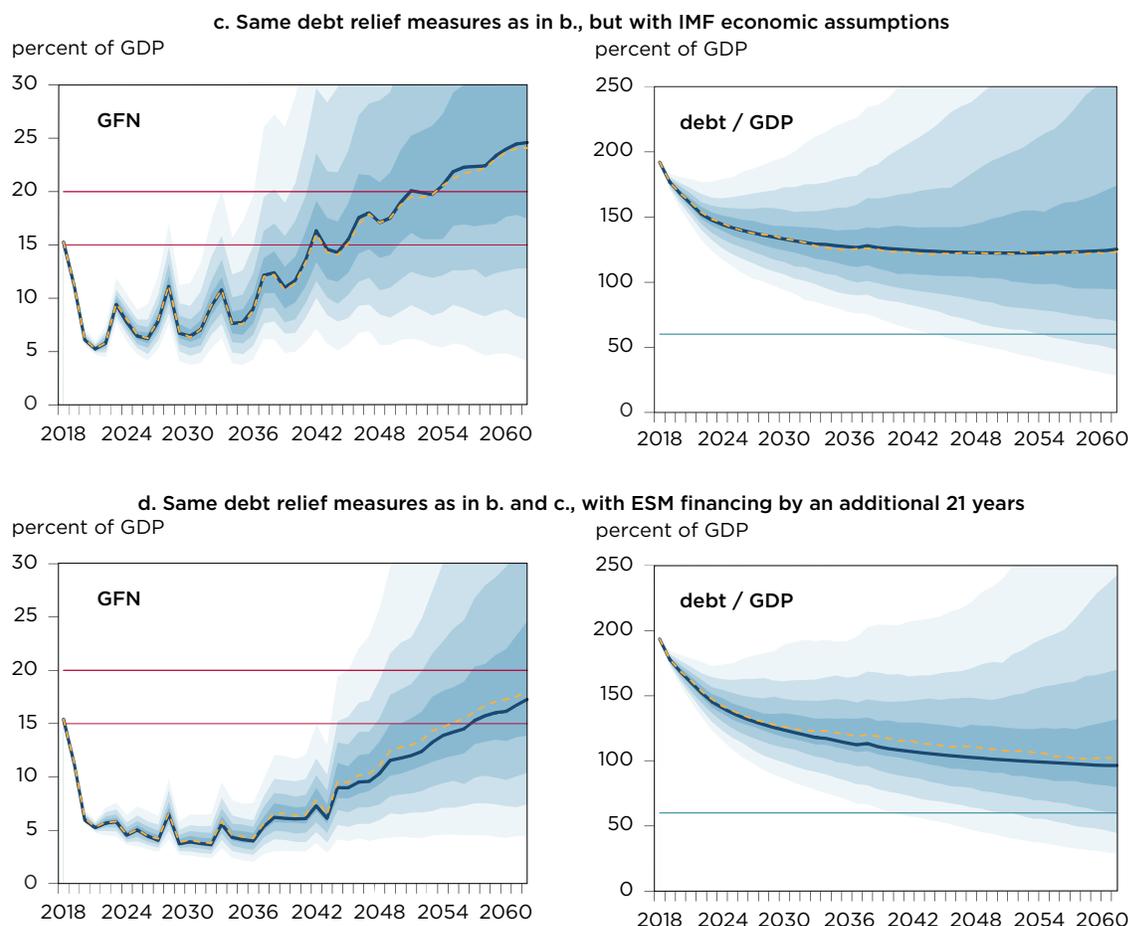
percent by 2043 (see Eichengreen et al. 2018 for details). The left column of the figure shows the projected evolution of gross financing needs. The main differences between figure 2 and figure 1.b are twofold: First, only the overall path of gross financing needs is drawn, rather than various components; second, the projections are presented in terms of fan charts that reflect uncertainty about growth, inflation, and interest rates rather than a single projected path.⁷ The right column of the figure shows the debt-to-GDP ratio consistent with

the paths of gross financing needs shown to the left. In each period, the debt ratio equals the previous period’s debt stock, minus amortizations, plus gross financing needs—the difference between amortization and interest and nonborrowing sources of financing (i.e., primary surplus and privatization revenues)—divided by GDP.

The first row of figure 2 establishes the baseline against which additional debt relief is assessed, namely, the gross financing needs and debt paths that would arise after full implementation of the debt relief measures suggested by the Eurogroup.⁸ The deterministic path of gross financing needs shown on the left of figure 2.a (blue line) corresponds to the gross financing needs path shown in figure 1.b. Clearly, debt is not sustainable: As already discussed, gross financing needs are on an explosive path and exceed 20 percent by about 2047. Debt initially falls, briefly stabilizes at around 120 percent of GDP, but then begins to rise again from about 2045 onwards.

7. Growth and inflation uncertainty is captured using a bivariate vector-autoregression model estimated with data from euro area members that joined by 2004 (see Zettelmeyer et al. 2017, box 2). Uncertainty about the risk-free interest rate and the risk premium are captured, respectively, by the standard deviation of German government bond rates and the regression standard error of the Laubach (2009) model used to determine the path of private interest rates. Note that this only captures uncertainty about model *parameters*, rather than uncertainty about whether the assumed interest rate *model* is valid. To address this, Eichengreen et al. (2018) undertakes a robustness exercise that assumes constant private sector risk spreads over time. The results confirm that the measures considered by the Eurogroup would be insufficient to restore debt sustainability.

8. See Eichengreen et al. (2018) for details on how these measures are assumed to be implemented.

Figure 2 Impact of Eurogroup measures and Greek Loan Facility (GLF) debt relief (continued)

EFSF = European Financial Stability Facility; ESM = European Stability Mechanism; IMF = International Monetary Fund

Note: Left-hand charts show gross financing needs (in percent of GDP) and right-hand charts debt in percent of GDP. Red lines indicate the Eurogroup's upper and lower thresholds for gross financing needs: 15 percent for emerging markets and 20 percent for advanced countries. The solid blue line describes deterministic projection, the shaded areas the percentiles (darkest to lightest: 60, 70, 80, 90) of the simulation distribution, and the dashed line the median of that distribution. For economic assumptions, see text and Eichengreen et al. (2018).

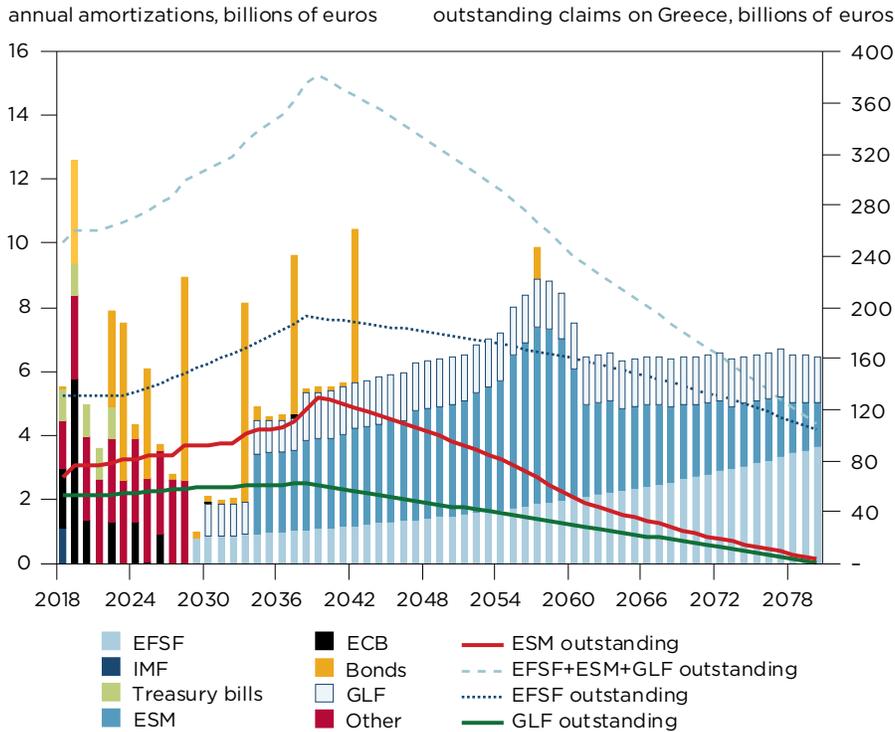
Source: Eichengreen et al. (2018).

The next row (figure 2.b) maintains the same economic assumptions as figure 2.a but shows the additional impact of a far-reaching restructuring of the GLF loans, including postponing the beginning of amortization payments by 10 years, stretching the amortization period from 20 years to 50 (until 2080), deferring any interest payments until 2038, and setting the lending spread to zero. This has a noticeable impact but does not prevent—only delays—the rise of gross financing needs above 20 percent. Furthermore, while the debt ratio falls during most of the time window shown in the figure, it gets stuck at above 100 percent of GDP and eventually (after 2055) starts rising again. Figure 2.c shows that these debt dynamics look even worse when applying the more pessimistic economic assumptions of the IMF (2017). Hence, this debt relief option is unlikely by itself to restore the sustainability of Greece's debts.

Finally, figure 2.d explores the combination of applying the full set of measures considered by the Eurogroup to the EFSF, the full set of measures considered in figures 2.b and 2.c to the GLF, and a very long extension of the period during which Greece would be financed by the European official sector—namely, over two decades. The gross financing needs and debt paths show that this may be sufficient to restore sustainability, albeit not with high probability.

Furthermore, the necessary additional official financing implied by the combination of these options is very high. Figure 3 shows the amortization profiles (bars, left axis) and total outstanding volumes for various debt categories (lines, right axis) based on the scenario corresponding to figure 2.d. The main result is that total European official sector exposure—that is, the sum of EFSF, GLF, and ESM loans—would rise from a projected end-2018 level of about €250

Figure 3 Greece’s amortization profile corresponding to scenario of figure 2.d



ECB = European Central Bank; EFSF = European Financial Stability Facility; ESM = European Stability Mechanism; GLF = Greek Loan Facility; IMF = International Monetary Fund
 Note: The figure assumes reprofiling of amortizations and interest deferral until 2038 of both GLF and EFSF debts, zero GLF lending spread and exclusive reliance on ESM financing for 21 years. Based on growth, privatization, and interest rate assumptions of EC (2018), Scenario B, and fiscal surplus path of Zettelmeyer et al. (2017). See Eichengreen et al. (2018) for details and technical assumptions.
 Source: Eichengreen et al. (2018).

billion to over €380 billion in 2038, an increase of over 50 percent. In the IMF scenario, total exposure would peak at €400 billion in 2038, an increase of about 60 percent. Repaying these debts could take until the end of the century and beyond.

An alternative approach to a long sequence of new ESM programs, explored in Zettelmeyer et al. (2017), would be to allow EFSF and GLF interest deferrals for an even longer period, beyond 2038. But the effect of this would be very similar to that shown in figure 3, namely, to create an *increasing* exposure of euro area official lenders to Greece for a very long time period, as long as interest is deferred, and maintain that exposure for the next 100 years or so.

If Europe wants to avoid a continuing creditor relationship with Greece for many decades and several generations after the 2010 crisis, it will need to think outside the box. Specifically, it will need to step over one of its current red lines, which is to refuse to consider any reduction in the face value of official debts.

CONDITIONAL REDUCTIONS IN THE FACE VALUE OF EFSF LOANS

The Eurogroup and the creditor countries have rejected face value debt relief, in part over concern about moral hazard. Once face value debt relief has been granted, what stops a country from becoming insolvent again and then asking for yet more debt relief? While the same question may be asked when debt relief is provided through maturity extensions and interest deferrals, these amount to low-interest lending rather than outright gifts, which limits the extent of the transfer. The second argument against face value debt relief is that it would likely be illegal, because it would violate the “no-bailout” clause (Article 125) of the Lisbon Treaty.

As argued in Eichengreen et al. (2018, see appendix 3, and references cited therein), these two arguments may be one and the same. Based on the *Pringle* case, in which the European Court of Justice was asked to take a stance on the consistency of the no-bailout clause with ESM crisis lending, a reasonable interpretation of the clause is that it allows for financial assistance of any kind—regardless of how it is delivered—if

and only if the latter is structured in a way that strengthens budgetary discipline. In other words, official debt relief could be consistent with Article 125 so long as the country delivers more fiscal adjustment with it than without it.

It is in fact possible to design a face value debt relief scheme for Greece that would meet this requirement. Central to the argument is that the Eurogroup and Greece can agree on fiscal targets beyond 2022 (when the currently agreed post-program period comes to an end) that would satisfy three conditions:

- a. First, the fiscal targets are sufficiently ambitious to make the Greek debt sustainable, even if no face value debt relief is forthcoming.
- b. Second, the targets are politically and economically feasible if they are rewarded by face value debt relief (but not necessarily in the absence of such debt relief).
- c. Third, Greece would make an effort to repay its debts—which implies *trying* to meet the agreed targets—even if it does not receive additional debt relief, and even if the effort is ultimately hard to sustain.

A fiscal path that arguably meets all three conditions is the path referred to in the Eurogroup’s June 2017 statement—that is, a 3.5 percent primary surplus between 2018 and 2022, followed by a decline towards 2 percent. As figure 1.c indicates, Greek debt could in fact be sustainable if this path were adhered to, even if debt relief does not go beyond the Eurogroup measures (condition a). At the same time, while this path is unrealistic, it might be feasible for a limited time if rewarded by the prospect of debt relief (condition b). Furthermore, if presented with the choices of attempting to adhere to the path or to default, Greece would undoubtedly choose the former—as suggested by the fact that Greece was present at the Eurogroup and did not publicly distance itself from the statement (condition c).

On this basis, a debt relief scheme that meets the Article 125 requirement of strengthening budgetary discipline could be as follows.⁹

- Greece would receive the full package of measures suggested by the Eurogroup, in several steps, conditional on meeting the fiscal targets agreed until 2022.
- Beginning in 2023, it would receive additional face value debt relief, on a year-by-year basis, conditional on good fiscal performance between 2023 and 2037.
- The extent of the debt relief would depend on the extent to which Greece overperforms an agreed “floor.” This floor—or “minimum” adjustment path—must

be realistic even if Greece does not receive any additional fiscal incentives for adhering to it. For example, the IMF considers a primary surplus of 1.5 percent to be realistic.

- A clawback rule would stipulate that face value debt relief is reversed if Greece’s primary surplus falls below the floor. This would make it impossible to game the scheme by alternating fiscal splurges with years in which adjustment triggers debt relief.
- The scheme would end after 2037, in line with the time limits the Eurogroup has set for reprofiling and interest deferrals. This implies a maximum for face value debt relief that Greece could earn over that period.

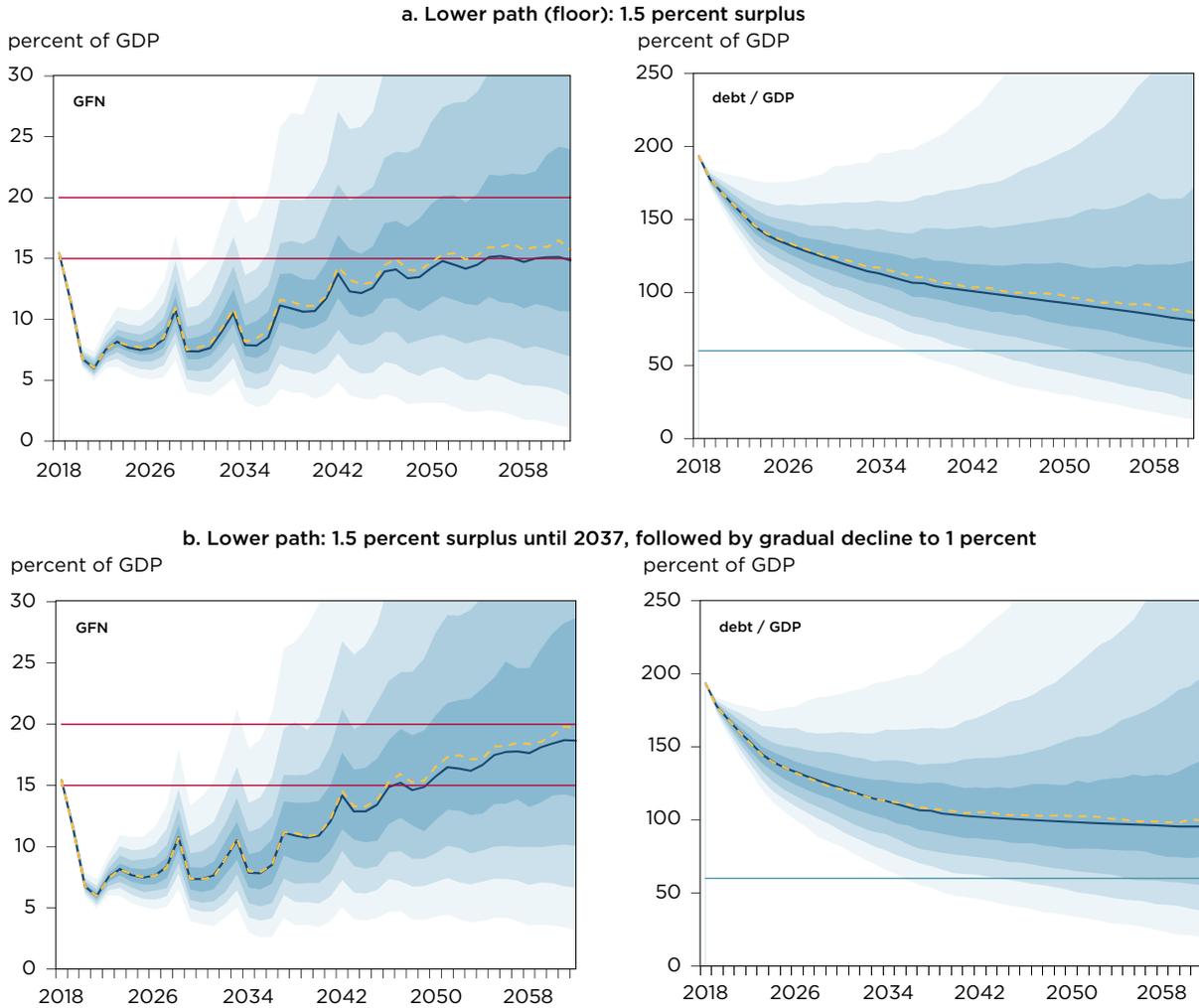
Under the assumptions made for both the targeted fiscal path and the floor—namely, that the former is a realistic target if rewarded by face value debt relief, while the latter is a realistic target even without this reward—Greece should adhere to the target for the duration of the scheme (but not beyond).

Figure 4 explores the implications of a scheme of this type, assumed to start in 2023 and end in 2037, in line with the time limits the Eurogroup has set for reprofiling and interest deferrals. The target primary surplus path consists of 3 percent in 2023, 2.5 in 2024, and 2 percent from 2025 to 2037. The assumed floor is 1.5 percent. For every euro by which Greece overperforms the floor during the 2023–37 period, EFSF debts are reduced by an equal amount, but only up to the point at which Greece achieves the upper fiscal path. For example, the maximum face value debt relief that Greece could earn based on its 2024 performance is 1 percent of GDP, and the maximum that it could earn over the entire period is 9 percent of GDP, or approximately €24 billion. As a share of Greece’s currently outstanding official debts, this is fairly modest—just over 10 percent.

Figure 4.a shows how Greece’s gross financing needs and debt ratio would develop if Greece adhered to the target path until 2037 and subsequently fell back to the 1.5 percent floor (and assuming implementation of the full set of debt relief measures considered by the Eurogroup, as in figure 2.a). The main result is that the proposed debt relief scheme would make the Greek debt sustainable, with a probability of above 50 percent but under 60 percent. This is a consequence of three factors. First, between 2023 and 2037, Greece is assumed to meet the primary surplus path of at least 2 percent of GDP. Second, it is rewarded with nominal debt relief worth 9 percent of GDP. Together, these two factors are equivalent to running a primary surplus of 2.7 percent of GDP, on average, between 2023 and 2037. Third, a reasonably high primary surplus,

9. Bulow and Geneakoplos (2017) have proposed an alternative scheme that follows similar logic.

Figure 4 Impact of conditional face value debt relief for Greece



Notes: Left-hand charts show gross financing needs (in percent of GDP) and right-hand charts debt in percent of GDP. Red lines indicate the Eurogroup’s upper and lower thresholds for gross financing needs: 15 percent for emerging markets and 20 percent for advanced countries. The solid blue line describes deterministic projection, the shaded areas the percentiles (darkest to lightest: 60, 70, 80, 90) of the simulation distribution, and the dashed line the median of that distribution. For economic assumptions, see text and Eichengreen et al. (2018). Based on growth, privatization, and interest rate assumptions of EC (2018), scenario B; see Eichengreen et al. (2018) for details and technical assumptions.

Source: Eichengreen et al. (2018).

namely the 1.5 percent assumed by the IMF, is maintained even after 2037.

Figure 4.b tests whether the proposed debt relief scheme would still be powerful enough to deliver sustainability when the primary surplus is allowed to gradually decline to just 1 percent in the long run (as assumed in figure 1.b and figure 2). The answer is yes, but just barely (with about 50 percent probability). Making the debt sustainable with higher confidence could be achieved in several ways: First, the conditional face value debt relief scheme described above could be combined with GLF debt relief as described in the previous sections. This would make the Greek debt sustainable with about two-thirds probability if one assumes that the primary surplus stays at 1.5 percent

indefinitely after 2037 and with about 55 percent probability if it gradually declines to 1 percent. Second, fiscal surpluses above the minimum level of 1.5 percent could be rewarded with greater face value reductions over the 2023–37 period. For example, awarding €1.50 for every euro of fiscal surplus above the minimum of 1.5 percent of GDP—implying maximum face value debt relief of around €36 billion, about 14 percent of official debts expected to be outstanding by the end of 2018—would raise the probability of debt sustainability to about 60 percent, if one assumes that after 2037 the primary surplus stays at 1.5 percent indefinitely, or between 50 and 55 percent, if the surplus gradually declines to 1 percent. Finally, the face value debt relief scheme could be extended beyond 2037.

CONCLUSION

Greece's debts will remain unsustainable even if the debt relief measures suggested by the Eurogroup, which are focused on EFSF loans and seek to avoid face value debt reductions, are fully implemented. If Greece exits from the present program relationship with only these measures in place, the following is likely to happen. In the best-case scenario, Greece would maintain high primary surpluses until 2022 or 2023, but a longer period of exceptional fiscal discipline, as imagined by the Eurogroup, is very unlikely. By the late 2020s, it will be clear that the Greek debt dynamics are again unsustainable. At that point, however, the costs of restoring Greek debt sustainability will be much higher than they are today, because a large new stock of expensive private sector debts will have accumulated in the meantime. These debts would either need to be restructured or—in effect—repaid by the European official sector. In a less favorable scenario, the new debt crisis could come much earlier.

If European creditors do not wish to commit at this time to debt relief beyond the type of measures outlined in recent Eurogroup statements, they would be well advised to continue financing Greece through the ESM for the time being, while postponing Greece's return to the debt market. Doing so would give creditors the option of granting extra official debt relief in the future, if and when the measures currently under consideration become clearly inadequate, without running into a new crisis that would require either massive additional official debt relief or a default on private debts.

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