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Greece's sovereign debt and economic realism

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Introduction

The problem

Greek unemployment currently stands at 23% (Hellencic Statistical Authority 2016), and has exceeded 20% for five years. Greek GDP is down 25% from its peak in 2009, and infrastructure investment has been almost nonexistent over the ensuing seven years. Young people have been emigrating in droves, exacerbating what was already one of the most alarming old/young ratios in the world. Capital flight has cost the banks roughly half their deposits, while half their loans are non-performing. The sovereign debt/GDP is almost 180%; worse, the debt is owed almost entirely to foreigners, and GDP is stated in what, for Greece, is an over-valued currency.[1] On top of all that, if the fragile European-Turkish refugee agreement breaks down, Greece may again be deluged by refugees, who, this time, might have nowhere else to go.

Greece is now being asked to run primary surpluses of 3.5% of GDP for an indefinite period of time, beginning with 2018, even as its depression continues. The Greek target is neither a realistic projection nor a serious policy goal. Even the IMF has argued that 3.5% is too much, suggesting 1.5% as a more realistic target.

After six months of negotiations, the IMF, the Europeans, and the Greeks have just succeeded at doing what they do best – kicking the can down the road. The Europeans have agreed to 'lend' Greece enough to 'repay' all their debts that come due in July, plus some extra money to pay off the recent domestic arrears that enabled the Greeks to manufacture a primary surplus in 2016. The IMF, whose approval of any deal was supposed to be critical, managed to neither approve nor disapprove, saying it would approve the deal 'in principle', subject to the implementation of still-unspecified debt relief measures that would make the remaining debt repayable. Meanwhile, unrest and labour strife remain high in Greece, and potential foreign investors are still scared off by the uncertainty surrounding the debt. The creditors have yet to receive any net payments, and all the ministers of Europe are obliged to attend to the Greek debt problem, instead of to more pressing issues like terrorism, Brexit, Putin, Trump, and the refugee crisis. More troubling, this is just a replay of the same exhausting scenario we have seen repeated time and again.

We present our analysis of how sophisticated and experienced negotiators like the IMF, the Eurozone leadership, and by now even the Greeks, could have let negotiations drag out for so many years. Then we propose a plan which, though a bit radical, might be just radical enough to meet the needs of all the parties. Crucially, our focus is not on getting the Greek government back to being able to tack on more private debt. Instead we propose a path of sustainable government debt reduction which would encourage tax payments, privatisations, and private equity investment in the economy.

The hardest part has already been done

The problems the negotiators faced, starting in 2009, were difficult and costly. Greece fraudulently hid a primary deficit in 2009 that was ultimately calculated at 10.1% of GDP. The European banks and hedge funds that held almost all of the debt were not providing new money and were demanding to be repaid. Those banks had to be bailed out, and those hedge funds would fight all write-downs. In worst shape were the Greek banks themselves, which had been stuffed with Greek Government Bonds. Coming up with the bailout money meant transferring significant losses to European taxpayers and it is easy to see why that was a difficult negotiation.

1 Were Greece not in the Euro, it would devalue; that it cannot do so does not make it better off.

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At this point, most of the debt has been transferred from private lenders to much softer official creditors, Greece has managed to remain in the Eurozone, €100 billion of private debt was forgiven, concessionary terms were negotiated on most official debt, and the Greek banks have been partially re-capitalised. All this at a cost of hundreds of billions in new official creditor loans that might not get repaid, or over €20,000 per Greek citizen. For its part, Greece has eliminated its 10% primary deficit and made some structural reforms.

Economically sophisticated Europeans understood from the beginning that they would get back little if any of their bailout loans; they are more focused on minimising their exposure to future Greek bailouts. At the same time, the Greeks understand that they will have to run at least small surpluses going forward. So, while the economic consequences of past negotiations were relatively large, the current bargaining is realistically over a few billion euros per year. What are the pitfalls that continue to make negotiations go down to the wire when the realistic economic differences seem so small?

Our plan for moving forward

We shall explain the current impasse in terms of the conflicting objectives of the negotiators. In a nutshell, we see two big problems. First, the Europeans feel there are significant accounting advantages to deferring the recognition of the economic losses that they have actually already suffered. Second, there is a fundamental lack of trust between the parties that stands in the way of a conventional long-term agreement. In particular, the Europeans feel that relentless monitoring and pressure via the IMF is required to force the Greeks to make reforms and pay back something. Unfortunately, this pressure has crushed the Greek economy and failed to incentivise the Greeks to actually pay back any of the debt.

We shall then make a radical proposal that we think can cut the Gordian knot and restore certainty to the Greek debt problem. In short, we propose (1) indexing the annual payment to how the Greek economy is doing, to avoid the constant renegotiations, and to oblige Greece to pay more when it is more able; (2) explicitly making debt relief gradual by making it conditional on how much Greece has actually paid back. Finally, we compare our proposal to the extension of maturities that is now being discussed, arguing that the latter just kicks the can down the road yet again.

The objectives of the negotiators

1. The Europeans

Though they will be loath to admit it, perhaps the biggest advantage derived from the Europeans having bought up most of the Greek debt is that they can now forgive much of it. Doing so would greatly improve incentives. When debt is effectively infinite, the debtor country has little incentive to sell assets or improve tax collection if it thinks the extra money raised will largely go to creditors – after the payment, the debt will still be infinite. So we start with the questions, why have the Europeans not written down the unpayable debt, and why do they repeatedly set fiscal targets that turn out to be unachievable? We give three reasons for the austere fiscal targets, three reasons for the reluctance to write down the debt, and one reason that applies to both.

- Because the debt is so high that it is unlikely to be repaid, new 'loans' to Greece must be priced as much more expensive aid, which makes some dose of austerity inevitable. It would be natural during a Depression for Greece to run budget deficits to boost its failing economy. But that would require more cash from the Europeans. European countries may be reluctant to use their aid budgets to support Greece, beyond the €5 billion a year or so in net subsidies it currently receives from the European Union as a low income country. When the Greeks talk about austerity, the economic complaint is not that they have had to pay too much to their creditors, since in aggregate their cash flow from creditors has been positive. Instead, unable to borrow privately because they cannot make a credible promise to repay, the Greeks have been limited in their ability to run primary deficits. So when the Greeks ask for more 'breathing room' they are really asking for more aid to run primary deficits, and Europe is concerned to minimise both current and future requests.

- Ambitious surplus targets allow aid to adjust to economic outcomes. While targets may be adjusted downward if the Greeks cannot meet them, they cannot realistically be adjusted upward if they can.

- High fiscal targets may incentivise Greece to make reforms that will generate more revenue. Or to put it the other way, low targets may give the Greeks slack to back-slide on reforms.

- The ESM and other creditors must worry about intra-European equity. For example, Italy has a large debt and a per capita GDP that fell by 13% from 2007 to 2014, and it has run a primary surplus (of about 1.5%) over the last five years. Portugal ran its first primary surplus in recent years in 2016 (1.6%) and has dramatically restructured. There are currently demands on all the southern European countries to significantly improve their primary surpluses over the next few years, not just Greece. A politically viable plan for fiscal targets and debt relief must be offered to all European debtor countries, and potential future debtors.

- Taking accounting write-downs could have direct and painful political consequences in Europe, even if the economic losses have already been suffered. For example, the ECB is set up as though it were a commercial bank, with reserves to protect its balance sheet against loan losses. If its Greek debt has to be written down then it will need to re-capitalise. If re-capitalising requires appropriations from the Eurozone parliaments it will be difficult and painful, and not make it easier to appropriate more funds for Greece. In part this reason is due to faulty accounting. A hedge fund that held the same Greek debt as the official sector would have already marked it down, making it unnecessary to take further losses if the debt were written down to the market level.[2] Whatever the reason, it is difficult for the Europeans to absorb an enormous write down at this time.

- The Europeans may want the Greek debt to be big for now. Large debt write-offs might enable the Greeks to borrow on the private markets and ultimately leave that debt to be repaid by the Europeans – there is reason to be concerned that even the 2014 bond issue will effectively have to be repaid by Europe.

- Avoiding write-downs of the debt stock may, ironically, increase the flexibility to provide additional aid. It is clear that the trend, since 2009, of Europe 'lending' more money to Greece, in excess of what is needed to stay current on payments both to the Europeans and other creditors, will continue for at least a few more years . Indeed, the agreement reached in July of 2015 calls for at least €30 billion in net cash transfers (i.e. new loans in excess of the sum of all interest and principal due) to Greece over the period ending in 2018.[3] Even if no more money is provided for Greece to run primary deficits, more will be needed to prop up the Greek banks, reduce the arrears to domestic suppliers, and build a small reserve account. Even if the IMF rolls over its loans for a few years, there will be unrelenting demands of about €11 billion, starting with over €2 billion this July, from private creditors before 2020. The ruse until now has been that the additional money has been needed so that Greece could ultimately repay in full. It may be a harder political sell to use this rationale while simultaneously writing down large chunks of debt as unpayable. So, if the Europeans want, or at least feel compelled, to give the Greeks more cash, that may make them more reluctant to write down the existing debt.

Summarising, even those Europeans who doubt that Greece will ever repay its official creditor debt, and are willing to give Greece a bit more aid, have legitimate reasons not to write down the debt right now or to set somewhat more realistic fiscal targets.

2. The IMF

The IMF has the job of certifying that a country's restructuring plan is viable. It is like a lender that simultaneously advises a potential borrower on what it might have to do to qualify for a loan, and then determines, through a 'Debt Sustainability Analysis', whether the plan is viable. Other official lenders may require IMF certification before they are willing to make loans, as was the case for Greece.

While the IMF likes to think of itself as a friend of the borrower, helping it qualify for and comply with a programme, it also plays the role of the 'bad guy' in insisting on reforms that would not be politically possible without external pressure. The IMF is well suited to this role because it is relatively abstract: the US is too unpopular to serve the role as bad guy in South America, just as the Germans are a bad choice in Europe. This is another reason the Europeans want the IMF on board.

Perhaps against its better judgement, the IMF approved a €28 billion package of its own for Greece in 2012, and the failure of that programme is a significant embarrassment. The IMF erred repeatedly in forecasting quick turnarounds in the Greek economy, none of which materialised. It is important to the IMF to be more credible this time around.

2 The same issue applies to the non-performing loans held by the Greek banks. If a loan is currently held on the books at 50% of face value then the bank cannot forgive more than half the loan, even if doing so would improve incentives, unless it is prepared to recognise a further accounting loss.

3 The actual assessment of Greece's financing needs (EU Fianacial Assistance), reported in July 2015 by the European Commission, for the duration of the 2016-18 programme (the one still being negotiated) was: €54.1 billion debt service, €25.0 billion bank recapitalisation, €7.6 billion cash buffer and SDR holdings replenishment, €7.0 billion arrears clearance, -€6.2 billion privatisations, -€2.0 billion primary surplus for a total of €85.5 billion. The debt service included €37.5 billion in principal amortisation, including the repayment of a 'bridge loan' given to the Greeks in July 2016 to enable them to become current on their IMF debt.

Going forward, the IMF sees Greece as capable of generating ongoing surpluses of 1.5% of GDP but no more. The Europeans want to project that a 3.5% surplus is possible, so that they can claim that no write-offs are necessary. The implication is that the IMF thinks that Greece can only pay back about 1.5/3.5 (43%) of its debt, and so write-offs of 57% of the total are necessary. If, as the IMF intends, its debt and the remaining private debt is to be exempt, the write-down of the remaining official debt would have to be closer to 2/3.[4]

The IMF is not just concerned about cash flows over the two- or three-year life of any proposed deal, but about the debt at the end. An argument that the debt will be renegotiated at the end of the deal is not good enough for the IMF; if the parties were allowed to anticipate unspecified but large write-downs in the future, there would be no meaning to the claim that a programme was viable.[5]

The IMF claims that it will not roll over its loans and certify a programme to be viable without considerable Greek debt relief. The IMF is willing to be flexible on the form of debt relief, allowing for example for large interest rate reductions and multiple-decade principal repayment postponements rather than principal write-downs. Ideally, the IMF would like to see large write-downs in return for its agreeing to roll over its loans, with Greece's economy improving and the Fund exiting over the next several years.

3.The Greeks

Just as we asked why the Europeans do not write down unpayable Greek debt, we ask now why, in the absence of debt relief, doesn't Greece just refuse to pay?

Greece has four very large incentives not to simply walk away from its debt. First, as already made clear, it is receiving net cash from its creditors. Even under the deal initiated in July 2015, Greece is still expecting more infusions of money. Second, a belligerent default, as seemed possible in 2015, might cause some European countries to demand that the €5 billion in annual European Union subsidies (about 2.7% of GDP) that Greece receives be applied to making payments on its unpaid debt, possibly costing more than the cash required to run a surplus, depending on the details of a programme. Third, as was made very clear in 2015, the Greek banks would be put into bankruptcy if they could not count on ECB 'liquidity' to roll over their debts without having to sell their assets. (The banks' loan portfolios would probably require additional write-downs, and the value of their Greek government securities would become very low without any implicit European support.) Fourth, despite the hardships of the last eight years and the possible benefits of devaluation, Greek voters are rightly concerned with putting at risk the opportunity of being a full partner in Europe.

Beyond just remaining in the Eurozone, we see the objectives of the Greeks as being to pay as little as possible over the next several years as they try to dig their way out of their depression; to continue the trend towards concentrating the vast majority of the debt in the hands of their most patient creditors, namely the ESM; to make sure there is enough money available to put the banking system on firm footing; and to have a plan that gives investors and consumers more confidence in the long run.

Finally, Greece has both economic and non-economic reasons for wanting long-term debt relief. Politically, The SYRIZA party won the last two elections on a platform of negotiating for debt forgiveness, and to maintain its leadership it would like to deliver debt relief. The morale of the people would soar if they 'won' debt relief. Finally, no sovereign or private individual can be truly free if it owes a debt that it can never repay.

Greece would like to spend more than it takes in, even while theoretically meeting primary surplus targets, by selling new debt to the ECB or to creditors who believe the debt will ultimately be backed by the Eurozone. However, this differs from the European vision of Greece making net payments each year, with any new debt only substituting for old public debt as the latter comes due.

Economically, regardless of who is to blame for Greece's depression, it is real and tragic. It is possible that the uncertainty about how the government would cope with the debt and whether Greece would remain in the Eurozone caused much of the capital flight that has crippled the Greek banks and the Greek economy. Furthermore, the current system leaves Greece with no carrots for improving tax collection or asset sales, if the extra money raised will have to be used to pay down a debt which will still be effectively infinite. Greece has the least power in these negotiations.

4 Because the IMF would likely focus on getting the debt down to a target ratio, such as 120% of GDP, rather than on actual long-term repayment, it might settle on much lower short-term write-downs. (At the time of the May 2014 review, for example, Debt/GDP was projected to fall from 175% of GDP at end–2013 to about 128% of GDP in 2020 and further to 117% of GDP in 2022.) If the current debt ratio is 175% of GDP, the IMF might require an overall write-down of one third, or 40% of the non-IMF (i.e. European) official debt that would be asked to bear all the losses. See IMF Greece Draft Debt Sustainability Analysis section A.1 (IMF 2015)

5 The European counter-argument would be that many if not most sovereign governments have programmes that are not realistically sustainable under current law that are only confronted when politically most convenient.

After its disastrous brinksmanship in the first half of 2015, the Greek government has adopted a strategy of agreeing to whatever it must in order to avoid being kicked out of the Eurozone, even if it privately doubts it can meet the agreed targets. How else to explain the curious stance it has adopted, castigating the IMF for saying it cannot meet the fiscal targets set for it to repay the debt, while at the same time pleading for relief from an unpayable debt? Its place in Europe has enabled it to get better bargains than, say, the South American debtors of the 1980s, but it is at the mercy of its largest creditors.

Extending the debt: what does it accomplish?

The debt relief discussion right now centres once again on 'extend and pretend': extending the maturity of the loans, and perhaps further reducing interest rates, while maintaining unrealistic long-term primary surplus targets. The problem is that if there are to be no write offs, then the interest rates cannot be reduced below the rates the ESM would have to pay to borrow the money.

The real effect of the latest Greek debt extension will be small. With no change in the 3.5% primary surplus targets, it is very likely that a renegotiation will be necessary as early as 2018. (Something will have to be done anyway by April 2019 to give Greece the €4 billion to repay the rest of its ill-fated 2014 private borrowing.) But no principal or interest is due on any of the debt likely to be extended until well after then: there is no money due to the Eurozone governments until 2020. No principal is due to the EFSF until 2023, and none is due to the ESM (other than new obligations incurred in the third bailout deal, which is the one still being negotiated) until 2034.[6] With no payments due for so many years, many in Europe do not see the pressing need to arrange further postponements now. The only definition of maturity extension that would imply meaningful action now would be a commitment of the European governments to come up with the cash to replace the debts coming due to the ECB, IMF, and private creditors over the next few years, allowing reduced intermediate surplus targets, rather than just extending their own claims. But so far this is not on the table.

If there are no reductions in primary surpluses, how do the proposed extensions help meet IMF targets for debt sustainability? Only in the following modest way: let's say that there are years when the amount of debt coming due is more than Greece's primary surplus target. A debt sustainability analysis could recognise that in borrowing the difference, the Greeks would have to pay a much higher rate than provided by the official creditors (even if lenders think there is some chance that the ECB or the Germans will again bail them out if the Greeks do not repay). It is the savings from not having to go to the private market, plus any reduction in rates on the existing debt, that is supposed to make the Greek debt more sustainable. But if the Europeans are to avoid write-offs or reducing their primary surplus targets, the best they can do is agree to roll over all the loan payments in excess of the primary surplus targets and directly reduce the interest rates that the Greeks are charged down to the creditors' own borrowing rates. This is unlikely to satisfy the IMF's goals for reducing the present value of the debt, and the IMF has already declared the year-by-year 3.5% long-run primary surplus unsustainable. Even if the IMF somehow finds a way to declare victory under pressure from the Europeans, this approach will just kick the can down the road until the renegotiation of 2018 or so.

It is hard to see how going down this route again would persuade either the Greeks or other Europeans, or potential investors that anything had really changed.

Radical, realistic reforms

1. Progressive debt repayments tied to government spending

We make two unorthodox proposals, both quite different from the usual debt restructuring deals.

The first proposal is to tie Greek debt repayments to its government spending, but in a progressive way. Specifically we propose that for every Euro the Greek government spends (excluding net interest payments) beyond €60 billion, it must make seven cents in debt payments to its creditors:

$$\text{Net Debt Payments} = 7\% * (G - €60 \text{ billion})$$

At the current time, government spending G is about €90 billion, or about half of GDP, and so Greece would owe 7% * €30 billion, or about 1.2% of GDP. Adding about €400 million in interest on excluded Treasury Bills would raise the required payments to 1.4%, or roughly the IMF surplus target. Net Debt Payments are defined as all cash payments to private and official creditors less any cash received from those creditors as new loans.

As the Greek economy grows, the required payment would rise gradually to a theoretical maximum of 3.5% of GDP (assuming Greece maintained government spending at about half of GDP), just as the Europeans are requiring.[7]

6 The data in this paragraph is primarily from the Wall Street Journal Greece Debt Timeline (Forelle *et al.* 2015).
7 We would index the €60 billion deduction for population growth and inflation.

This proposal would cost the ESM some cash, as money would have to be 'lent' to the Greeks to make payments to the private creditors and to the IMF, to the extent it did not roll over its loans, if these were in excess of the indexed formula. (Of course the ESM would also have to give the Greeks money to pay the ECB, but that involves no net cash cost to Europe.) Any unpaid amounts would be added to the outstanding principal of the debt, just as in the recent agreement to cover this July's scheduled payments.

Because the debt payments would be progressive, the proposal ties Greek payments to its actual capacity to pay, not to a projection of its capacity to pay that may turn out to be badly wrong. As the capacity builds and falls, the required payments automatically adjust.[8] In this way the proposal does the same thing as a long-term floating rate bond does; it automates the process of setting new payments based on changing economic data without the parties having to be drawn into constant re-contracting. An advantage of our proposal is that it gives Greece a runway to get its economy off the ground and out of its depression.

Similar progressivity could be achieved by indexing debt payments to tax revenue, GDP, or unemployment. In some ways unemployment might be the best indicator of the health of an economy. We chose G for two reasons. One is that it is easier to monitor than unemployment or GDP. Another advantage of the proposal is that it gives some incentive to Greece to reduce government spending as a fraction of GDP. It becomes transparently clear to the government and the population that higher G costs Greece more payments to foreign lenders.[9]

The IMF could approve the viability of the plan on the grounds that the year-by-year targets for primary surpluses that the plan sets are arguably reachable, regardless of the state of the economy. While the principal on the debt might not come down, the debt would be perpetually 'sustainable' under these terms. This is true regardless of the assumptions made about future interest rates and future economic growth.[10]

The Europeans would not be forced into taking large short-term write-downs while the Greeks would have the burden of their debt payments capped at a reasonable level. There would be no need for a day of reckoning requiring another renegotiation.

Economists would conclude that the present value of debt repayments for Greece under this plan was far less than the amount currently owed, so there would be real and significant debt relief, even as the creditors would not be forced to take write-offs until they were ready. The open-endedness of the plan is what allows the IMF to declare viability without the Europeans having to recognise losses.

Note too that, while this proposal would be attractive to Greece, it would not be beneficial to other countries whose debts were already sustainable and who would ultimately repay in full if they met the programme's primary surplus requirements.

Finally, the European concern that Greece would use the lower official debt as a means to take on new debt from private lenders, that will ultimately become a burden to Europe, would be dealt with by requiring that all new private debt be both long term and explicitly junior to the existing official debt, and so subject to deferral so long as any official debt was deferred. The Europeans would have much greater ability to effectively monitor Greek finances than they would with, say, a 20-year grace period on repayments. As a practical matter, private borrowing would not occur before either the public debt was extinguished or the Greeks exited the plan (which would mean forfeiting further debt reductions and deferrals).

2. Debt forgiveness on a pay-as-you-go basis

The first plan is arguably a way of replicating the deals that would come from continued annual renegotiation, without the *Sturm und Drang*. While that is a crucial advantage for stability, the face value of the debt would remain unpayable, and there would be no incentive for the Greeks to ever pay more than the minimum required. Any estimate of the percentage debt reduction in present value terms would be much more art than science, highly sensitive to choices of appropriate risk-adjusted interest and growth rates. As with the current system of renegotiation, Greek voters and investors might view the outstanding debt as infinite and perpetual. Similarly, the IMF might have trouble with a proposal that was likely to permanently exclude

8 For example, if GDP fell again by 33%, and G also fell 33% to €60 billion, then net debt payments required by the formula would fall to zero.

9 We do not have strong priors that government spending is the right variable to which to index. Ideally we want a simple measure that is indicative of the health of the economy and is difficult to manipulate, or at least where the amount of manipulation will not change much with the implementation of this plan. For example, government spending might be under-reported through the use of guarantees. However, if the volume of under-reporting would not change much with our plan, then government spending still might be an acceptable variable.

10 The IMF could not certify that this plan would ever lead to Greece's return to the private market but the second part of our plan addresses this.

the borrower from the private market without a subsequent renegotiation.

We therefore propose that every time Greece pays one euro out of primary surplus or asset sales to its European official creditors, it is given credit for three euros of payments.[11] This plan alone clearly reduces the present value of the European debt by two-thirds, as only one-third as much has to be repaid at all times. The two-thirds reduction applies regardless of the discount rate used, essentially because this change would not re-profile the debt (change any maturities).[12] Clearly Greece can say that two-thirds of its European debt was eliminated.[13] So primary surplus targets would be determined by the progressive payment programme, until all the debt was paid down, but every euro paid out of surpluses and asset sales would reduce the face value of the outstanding balance by 3:1.

This plan would finally give Greeks an incentive to pay taxes. Once a primary surplus is reached, as it was in 2016, every additional euro of taxes raised would reduce the Greek debt by three euros. For years, the IMF and the Europeans and the Greek government have searched for ways to encourage Greeks to pay taxes. But with the marginal tax dollar slated to go toward paying an unpayable debt, there was little incentive to cooperate. At 3:1, attitudes might change.

By the same logic, the 3:1 plan incentivises Greece to privatise and sell off assets. While it is unclear whether Greece is capable of paying off a third or half of its existing debt, even at the concessionary interest rates it receives, it is at least possible. So, selling assets to pay down debt would be a much better value proposition than a situation where the amount of debt outstanding is effectively infinite.

But notice that the creditors do not have to write down any debt at all until they get money from the Greeks. Until now they haven't gotten any net money from the Greeks. From the point of view of the lenders, the writing down of debt is very gradual, with write-downs only occurring when payments are made.[14] We would design the 3:1 programme as having a finite life, perhaps 50 years. Theoretically, if Greece did not pay down its debt over that time the remaining amount would no longer be subject to reduction. This possibility is what might allow the Europeans to delay taking a write-down until actual debt payments were made.

A German sceptic, who thought it unlikely that Greece would repay much if any of its debt, but wanted to keep the amount outstanding large to avoid asking the Bundestag for more money and to make it harder for the Greeks to borrow more on the private market, should be fine with this programme. Greece gets forgiveness, but it is conditional on its payment of hard cash.[15]

As we mentioned earlier, an important role would be played by the ESM in smoothing debt payments.

In 2019, for example, €6.15 billion in principal repayments will be due to the IMF plus private creditors (see Table 1). Interest due to these creditors will be on the order of €1 billion. Say that Greece is supposed to come up with €3

11 Repayments to the ECB may yield ESM write-offs. New borrowings caused by primary deficits or repayment of domestic debt (as opposed to repayments of senior external debt) would not be eligible for the 3:1 programme and would have to be repaid before programme-eligible debt. New loans to pay off private and IMF debt in years where payments to those creditors exceeded the total payment budget would also be excluded from the 3:1 program.

12 If some of the debt is re-profiled through rollovers at an interest rate below the discount rate then the reduction would be greater than two-thirds.

13 The government could even say to its voters that its payments were going to be less than the annual EU subsidies for the foreseeable future, in the unlikely event it was willing to stop blaming debt repayments for its troubles.

14 Regardless, for some years all write-downs could effectively come out of interest rather than principal forgiveness. For example, say Greece owed 180% of GDP at 2% interest. Its interest bill would be 3.6% of GDP, and if it made payments of 1.5% of GDP it would receive a write-down of 3%, so less than the interest. Only as the debt/GDP ratio declined and Greece continued to run primary surpluses would a portion of write-downs come out of principal.

15 Some have argued that Greek debt relief should be postponed so as to be conditional on Greek reforms. Greece's economic reforms so far have not brought it to the level of other debt-strapped European countries, but then it started well behind; change does not occur overnight, regardless of laws passed. As one measure, consider the World Bank ease of doing business ratings for different countries in 2008/9 and 2015/16. Portugal went from 43/48 to 25/23; Spain from 49/46 to 33/33; Italy from 59/65 to 56/45, and Ireland from 7/7 to 13/17 while Greece advanced from 106/96 to 61/60. While there is much more to do in Greece, it has made progress. (Though see the discussion in the 2016 Annual Report (Doing Business 2016), pp. 6-7 which indicates both some of the remaining problems in Greece and the difficulties in translating changes in the laws that lead to improved rankings to practical efficiency gains.) At the same time, with little new creditor money available, it had to cut spending enough to move from a 10% primary deficit to primary balance, even as the economy collapsed. On a cyclically adjusted basis the austerity has been more dramatic as Greece went from a primary deficit of 13.2% in 2009 (by far the worst amongst advanced countries) to surpluses averaging 3.1% in 2012-15 (the best, other than Italy at 3.3%). See the IMF Fiscal Monitor (IMF 2016), table A.3, p. 77. The Greeks may have a case when they argue that the Europeans have pushed the Greeks to make promises they should have known would not be kept. It seems to us that there is little more to be squeezed out of Greece without radically changing the structure of the agreement in a way that incentivises Greece to be a more enthusiastic partner. Reforms are important to the Europeans, but mostly as a way of improving productivity in Greece to make it self-sufficient and able to repay part of its debt. One could imagine linking debt forgiveness for reforms to our plan by having the forgiveness ratio (which we have fixed at 3:1) increase to the extent that the IMF certifies that reforms have been made. The difficulty in agreeing on a schedule, and measuring objectively whether reforms have been made, makes us sceptical.

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billion in cash that year. Then the ESM will have to 'lend' Greece another €4.15 billion to make up the difference. Furthermore, if Europe decides that all ECB payments must be made on schedule and those debts are not rolled over, then the ESM would have to come up with the additional €5.78 billion (plus interest) as a new loan to cover the ECB payments.

Table 1.

YEAR	Private	IMF	ECB
2017	€ 2.0891	€ 0.5916	€ 3.8679
2018	€ 0.0000	€ 1.8084	€ 1.8604
2019	€ 4.0308	€ 2.1210	€ 5.7821
2020	€ 0.0000	€ 2.1210	€ 1.3664
2021	€ 0.0000	€ 2.1210	€ 0.0000
2022	€ 0.0000	€ 1.9758	€ 1.3072
2023	€ 1.7925	€ 1.3842	€ 0.0000
2024	€ 1.7715	€ 0.3126	€ 1.3059
2025	€ 1.7443	-	€ 0.0480
2026	€ 1.4988	-	€ 0.9367
2027	€ 1.4670	-	-
2028	€ 1.5254	-	-
2029	€ 1.5039	-	-
2030	€ 1.4354	-	€ 0.0075
2031	€ 1.3680	-	-
2032	€ 1.3738	-	-
2033	€ 1.4526	-	-
2034	€ 1.4103	-	-
2035	€ 1.4442	-	-
2036	€ 1.5051	-	-
2037	€ 1.3963	-	-
2038	€ 1.3822	-	-
2039	€ 1.3373	-	-
2040	€ 1.3719	-	-
2041	€ 1.3627	-	-
2042	€ 1.4327	-	-
	€ 35.6958	**€ 12.4356**	**€ 16.4821**

Consistent with our measurement of forgiveness (two-thirds of current debt to Europe) the new loans made to cover payments to private creditors and the IMF would not be eligible for 3:1 credit upon repayment. Loans to cover ECB payments would be eligible, however.

By 2025 payments to private creditors will have fallen to about €2.25 billion and Greece's payment obligations will, hopefully, be significantly above that amount. The excess payments would first be used to repay any outstanding new loans such as those described for 2019. Once those loans were paid off any further cash payments would receive 3:1 treatment.

Some additional terms and rules are needed to complete the plan:

- 'New official debt' (such as the '2019 debt' above) would be indefinite maturity debt priced at short term rates until repaid.
- If Greece borrowed privately and used the proceeds to pay down official debt it would not qualify for 3:1 forgiveness on that part of its official debt until it paid down the new private debt. Specifically, for every euro of official debt paid down with private borrowing, two euros of official debt would be made junior to the new private debt (which in turn would be junior to all other official debt) and would be forgiven as the private debt was paid down. This is to prevent the unlikely scenario of private lenders providing Greece with €77 billion in new loans to pay off €231 billion in official debt, with Greece then exiting the programme without having made any payments but having eliminated €154 billion in debt.
- Any 3:1 reductions made out of required cash payments reduce all future principal repayment obligations pro rata, so the duration of the reduced debt is unchanged by the forgiveness.
- Any net payments in excess of the requirement may be used either to make market purchases of outstanding private debt or pay any outstanding official debt that the Greeks choose. The 3:1 rule would apply except for IMF debt; early repayments of ECB debt would be offset by ESM forgiveness.
- If formula payments in any given year exceed the amount due in that year Greece is only obligated to repay the amount due. It gets 3:1 credit on all qualifying debt extinguished during that year.
- New Greek government guarantees, which can serve as a substitute for spending or borrowing, would have to be negotiated with the official creditors.
- Non-recourse loans against public sector assets, which could serve economically as a partial sale, would have their status negotiated with the official creditors on a case-by-case basis.

An important principle of bargaining is that deals should take advantage of differences in the parties' perceptions. This programme should make Greeks who think that they will be forced to pay enormous sums feel better off, while doing the same for Europeans who expect to recover little from Greece and are most concerned about being forced to throw more good money after bad.

The marginal cost of adding the second proposal to the first would probably not be high – we are not confident that, over the long-run, under the first proposal Greece would perform well enough to repay half its debt[16], considering the loss in recent years of so many of its most promising young people and its daunting demographics, as well as the burden of a permanently over-valued exchange rate. It would, however, allow the Greeks to see a little more light at the end of the tunnel.

While we regard implementation of the first proposal as more important because it deals more directly with the cash flow issues in the foreseeable future, and either could stand on its own, our preference would be to have both proposals integrated and adopted. Greece would make the formula payments each year, and eventually the 3:1 match would kick in, leading to a gradual reduction in the debt. On its own, the 3:1 plan leaves open the precise schedule on which the Greeks make their payments. Another possibility would be to stick with the July 2015 plan, but modify it with the 3:1 rule. The 2015 plan envisions Greece running a 3.5% primary surplus each year starting in 2018, and imagines that the ESM will roll over any debt that comes due which is greater than the 3.5% payment. Under our proposal, if all debts qualified, Greece would only need to make 1.17% primary surplus payments each year, but those would count triple, that is 3.5%. Allowing for exempt Treasury Bills and private debts, this is very close to the 1.5% IMF target.

Eligibility for this programme could be limited to countries that imposed significant haircuts on their private creditors, as Greece did through its Private Sector Involvement but as few others will wish to do. Our requirement that new private debt be junior to debt in the 3:1 programme would also discourage participation by those who wished to continue to borrow in the private market.

The most radical aspect of (both parts of) our approach is that, rather than focus on getting Greece back to private borrowing, we focus on having it pay down its debts. While there are contexts where being able to borrow on the private market is the best test of solvency (the country's ability to stand on its own and repay its borrowings) we don't think that's true here: new Greek 'private' borrowing would probably rely mostly on selling bonds to the ECB, and would otherwise be dependent on the official creditors allowing the private borrowers *de facto* seniority and ultimately European support to repay the loans – the same things that private creditors are relying on now to get repaid. The best way for Greece to prove stability would be to make it through a couple of years in a programme that looks to be long-run sustainable.

Under both proposals, we would suggest that at least €20 billion, and ideally more, be budgeted for the future probable recapitalisation of the Greek banks. The late 2015 recapitalisation only injected €5.7 billion against a (probably low) initial estimated cost of €25 billion, holding back the remaining €20 Billion.[17]

One objection to our 3:1 plan is that, even if the Europeans did not have to write down their debt right away, they would have to go to their Parliaments to get permission to implement it. By contrast, they might not need any permission to extend the maturities of the debt. If so, perhaps others with a better understanding of the accounting and bureaucratic constraints can achieve the same economics we propose, but in a more palatable way. Ideally, in introducing these new approaches we will at least have broadened the parties' view of the kinds of designs that might produce a mutually beneficial long-term deal.

There are effectively two phases to our plan. Over the first decade or so (longer if there is another bank bailout, shorter if we make the July 2017 ESM loans eligible for write-downs), the repayment formula provides roughly enough so that the IMF and a third of the private debt can be paid down with nothing on net going to the Europeans. This decade without paying anything to Europe gives Greece its 'breathing room' but the consequence is that there is no write-off of the face value of the debt during that time. Later, as official debt comes

16 According to the Wall Street Journal on May 30, 2017 Greek debt broke down this way (in billions of undiscounted future principal repayments): EFSF €131, Eurozone governments €53, ESM €30, ECB €17, IMF €12, Treasury Bills €15, private creditors €36. Our plan would encompass the first four kinds of debt, which all involve payments to Europe, and so involve a reduction of €154 billion before considering any effect of the first plan's payment limitations on accounting for the present value of forgiveness. In addition to this $293 billion the Hellenic Republic Debt Bulletin 85 (2017) includes another €33 billion including Greek government repos, loans from the Bank of Greece and other. It also notes that the government has guaranteed €12 billion in other debt. We consider all this to largely be domestic debt which the Greeks will have to settle internally. Including the obligations to be converted to ESM debt in July 2017 would make the debt write-downs start a little sooner and be a little larger.

17 See for example this Reuters (2015) report. Piraeus and National banks were deemed to need this much funding from the Hellenic Financial Stability Fund while the other major Greek banks were deemed to not require public funds. All parties had incentives to understate the problem: The bank equity holders did not want to be diluted out of existence, the Europeans did not want to put in more money, and the Greeks were concerned that more money put in would lead to either less cash for other purposes or a demand for greater repayments, as well as (less relevantly) an increase in the face value of its unpayable debt. Repayment of the new loans required to finance the bank bailout would be treated like the '2019 loans'. In addition, the 2015 plan allowed extra funds to replenish the almost totally depleted bank accounts of the Greek government and to allow it to pay down some of the internal debt it built up, for example through arrears to suppliers, as it looked for money in late 2014 and the first half of 2015 to stay current on its external debts during a period when it was without a programme.

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to represent over 90% of all remaining obligations, repayments start flowing to Europe and the 3 for 1 plan becomes increasingly important.

It would be possible for Greece to receive some debt forgiveness in the first decade if it paid more than the minimum required in a year. For example, if Greece raised €10 billion in additional revenue from asset sales it could take the extra money and use it to effectively pay down €30 billion of official debt. However, it seems more likely to us that the government would choose to use the money to increase spending or reduce tax collections.

Conclusion?

Our plan sounds radical, but really it is not. Others have suggested linking debt payments to GDP. Our spending index is easier to measure, and gives better incentives. Others have suggested making debt forgiveness gradual, and conditional on reforms. But reforms are hard to measure, and their implementation pits the Europeans (or IMF) against the Greeks. Making forgiveness conditional on actual payments puts Greeks and Europeans on the same page.

One difference is that conventional plans focus on enabling Greece to regain access to private markets, presumably as a way of persuading investors that the country has returned to stability. We focus instead on improving stability by helping Greece pay down its debt. The reason is that Greece's ability to borrow privately is not really a sign of confidence in the strength of the government's policies or the Greek economy. Rather it depends on whether the Europeans will let the new debt have implicit seniority over official debt, and whether the debt is small enough (and the private creditors are nuisance enough) that some combination of the Greeks and Europe will come up with the money to repay.

Would our proposal be enough to put right the Greek ship of state? We don't know. Some economists might reasonably wonder whether the current and future Greek governments will be capable of maintaining even a consistent primary balance while coping with their internal social welfare obligations. But we agree with the IMF that it is unrealistic to expect that the Greeks will eventually pay anything close to their current debt obligations. At the same time a deal should try to accommodate the key interests of all parties – the European desire to postpone accounting losses and minimise the likelihood of having to pour in more cash; the IMF desire to have a plan that they can claim (with a straight face) is viable without planned future renegotiation, and the Greek desire to claim that the debt has been reduced to the levels of 10-15 years ago. We think there are real costs to the constant bargaining, brinksmanship, and uncertainty that have dominated the last seven years. It is past time to develop and implement economically realistic long-term solutions.

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