Fixing Greece

> *"By fixing Reparation [loan] payments well within Germany's [Greece's] capacity to pay, we make possible the renewal of hope and enterprise within her territory, we avoid the perpetual friction and opportunity of improper pressure arising out of [EU] Treaty clauses which are impossible of fulfilment, and we render unnecessary the intolerable powers of the Reparation Commission [Troika]."*
>
> J.M. Keynes [edited], *Proposals for the Reconstruction of Europe,* 1919 [2017]

WITNESS, IF YOU WILL, the resurrection of the Greeks. Disbursement of €7.7 billion on 7th July by the European Stability Mechanism (ESM), with another €0.8 billion soon to follow, and an "Agreement in Principle" International Monetary Fund (IMF) precautionary arrangement, has brought Greece to life once more—and deservedly so.

The Greek government bond (GGB) 10-year yield at roughly 5½ percent sits close to post-crisis lows. The Tsipras government has returned to markets with a five-year bond with 4.635 percent coupon, below that attained by the previous administration in 2014. SYRIZA can be forgiven for eyeing program exit.

But the Greek situation raises a substantial analytical challenge still—especially with public debt to GDP hovering *above* 170 percent. The IMF claims Greek debt to be *unsustainable*—pressuring EU creditors to offer more substantive debt relief—and insist on both *more* fiscal adjustment near-term yet *lower* primary surplus targets beyond 2022. The Europeans (EU) and Greeks take a more sanguine view. International investors seem unperturbed.

How can Greece be fixed? And what prospects from here?

Debt sustainability wars

THE LATEST Greek program documents (EU Commission and IMF) make no effort to conceal divergent views between Brussels and Athens—the "Europeans"—and Washington, DC. Differences mainly relate to fiscal policy and public debt sustainability.

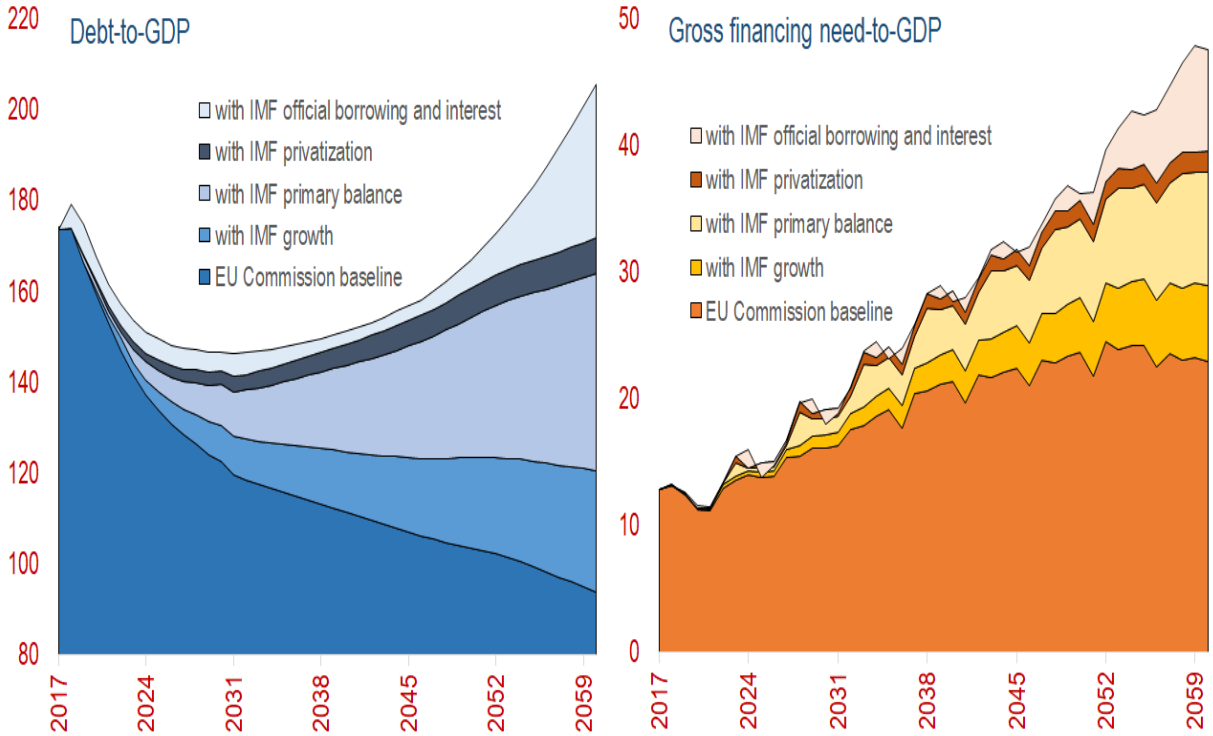
Three points of contention stand out: near-term austerity; the medium-term primary surplus; and long-term growth.

First, **near-term austerity**. A quick recap. Following the aborted effort of the SYRIZA government to reverse austerity mid-2015, the Greek government committed to a primary surplus of 3½ percent of GDP by 2018—on threat of extinction. This required 4½ percent of GDP additional—quickly legislated—consolidation despite ongoing depression. Meanwhile, 2016's primary surplus success (+4.2 percent of GDP), though largely due to "temporary factors," offers hope that the worst is at last behind the Greeks.

In assessing progress towards these 2015 commitments, European institutions recently saw a small fiscal shortfall (0.3 percent GDP) promptly addressed by the Greeks.

But the IMF were not convinced. Relative to the European assessment, the Fund remains circumspect as to tax revenue yields and likely future

Figure 1: Debt sustainability: Decomposing EU Commission versus IMF Debt Sustainability Forecasts



pension spending; in addition, they remain cautious regarding future growth and capacity for fiscal restraint.

Overall, the IMF see a shortfall relative to the *Europeans'* 3½ percent primary surplus objective. And so, to secure continued IMF involvement additional fiscal measures have been legislated: average pensions will be cut 12 percent and the personal income tax credit reduced 40 percent in 2019 to yield an additional 2 percent of GDP fiscal adjustment—on top of the 4½ percent of GDP plus 0.3 percent additional action, as assessed by the Europeans and agreed since 2015, itself on top of the roughly 10 percent primary balance adjustment since 2009.

The primary surplus will therefore, in the IMF's baseline, increase from 1¾ surplus this year to 2.2 percent in 2018 and 3½ percent in 2019.

Given their disagreement with the IMF on the impact of 2015 measures, the Europeans have additionally agreed—and the Greeks legislated—an offsetting 2 percent of GDP in expansionary measures for the Greek economy "contingent" on fiscal performance. If the 3½ percent primary surplus is assessed as durably achieved in 2018—as the Europeans currently expect—then an expansionary tax and spend package of 2 percent of GDP will be triggered to offset that legislated for 2019 to keep the IMF involved in the program.

If this seems messy, that's because it is.

Second, **medium-term primary surpluses**. Based on historical experience, the IMF argue that primary surpluses of 3½ percent of GDP into the (almost) indefinite future beyond 2022 are unlikely to obtain.

The IMF therefore envisage expansionary measures noted above will be enacted after 2022, and the primary surplus settle down at 1½ percent from 2023 onwards. The Europeans, on the other hand—while softening their previous position aiming for a 3½ percent primary surplus into the foreseeable future—expect the primary surplus to fall to

2.2 percent in 2025, holding thereafter. This 2.2 percent target conveniently means, despite rising interest costs, the total (primary and interest) fiscal deficit approaches, but never exceeds, the Europeans' 3 percent deficit limit—whereas in the IMF's baseline this redline is crossed.

Third, **long-term growth**. To assess sustainability, a view is needed on long-term growth and inflation. Greece is a rapidly ageing society, with working-age population expected to contract roughly 1 percent a year from 2020—hence rising pension costs.

Demographics imply a negative long-run real growth rate given past productivity trends. And so, assuming total factor productivity (TFP) growth at *triple* the historical rate thanks to "structural reforms" allows the IMF to, reluctantly, justify 1 percent real growth from 2025 for forecasting purposes. The Europeans also acknowledge the impact of ageing, but see real GDP growth at 1¼ percent beyond 2030.

As for the GDP deflator, despite saggy global inflation and a huge output gap in Greece, with unemployment expected to remain in double digits until 2040 (IMF ¶11), both institutions see inflation returning to close to, but below, 2 percent from the mid-2020s—with the EU long-run assumption roughly 0.1 percentage points above the IMF.

Together the EU's growth and inflation assumptions compound to deliver Greek 2060 nominal GDP (€740 billion, 2016's being €176 billion) roughly 20 percent above the IMF's projection (€625 billion)—2060 being the current horizon for the EU's debt sustainability analysis; the IMF now carry theirs to 2080!

This background allows us to recreate and contrast the debt

Figure 2: Contributions to changes in Greek Debt-to-GDP (left) and new scenarios (right)

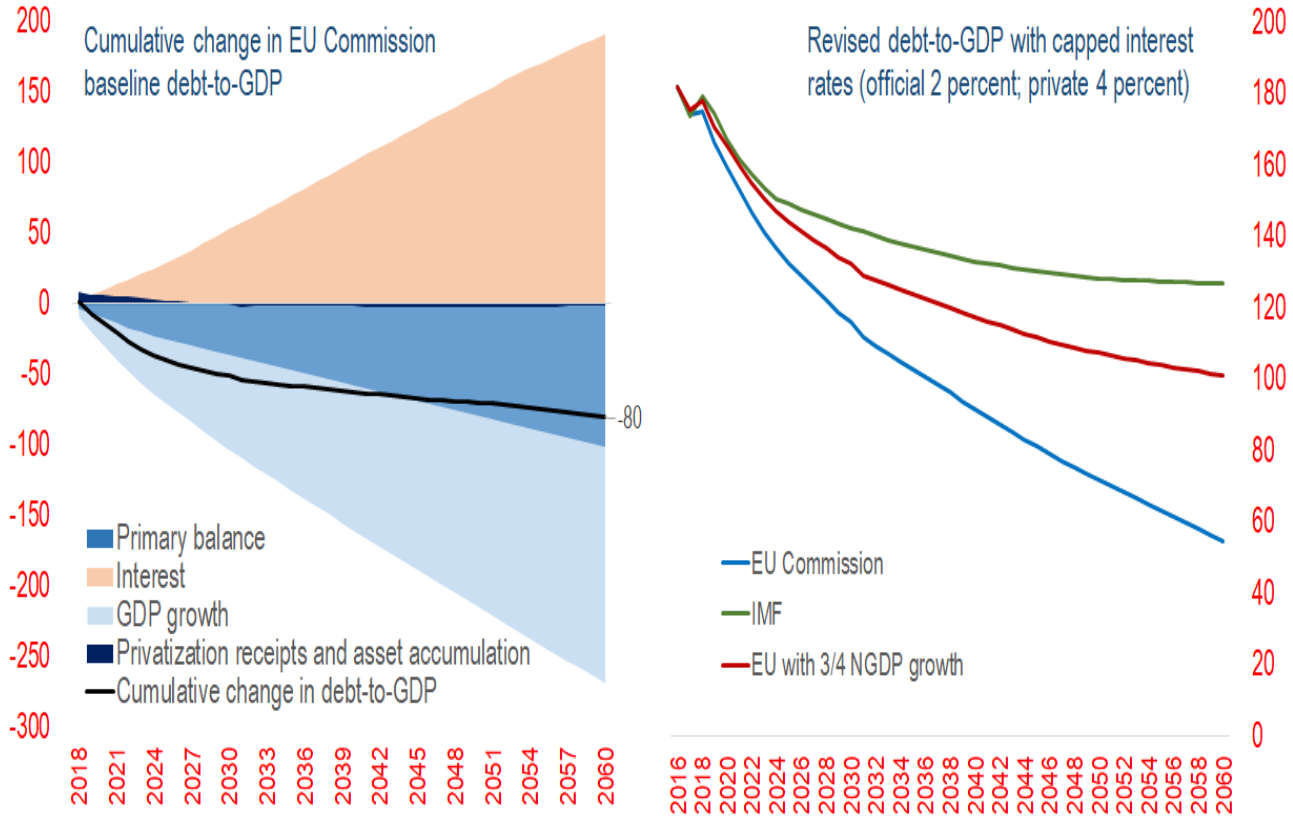
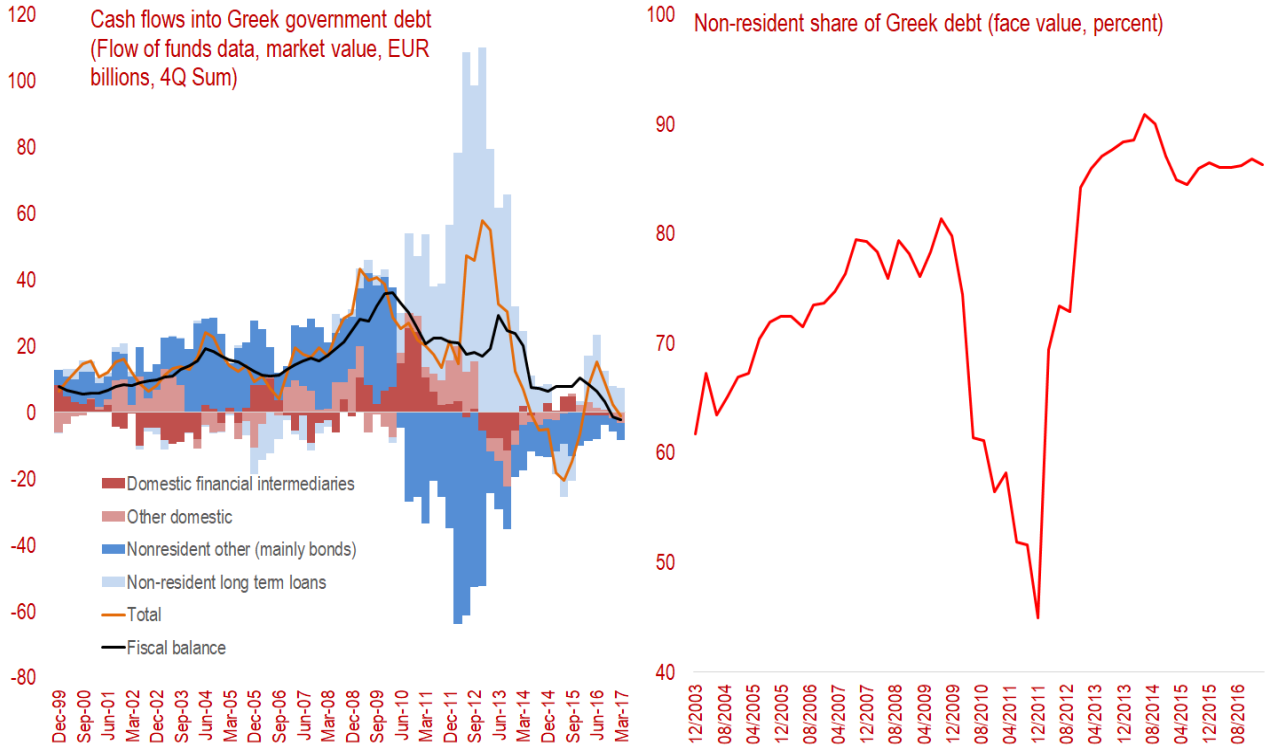


Figure 3: Greek General Government Debt: Between 2000 and 2009 the majority of the Greek debt was bought by non-residents, meaning external debt was 80 percent of total when the Crisis hit



sustainability analyses of EU Commission and the IMF. Some additional differences should be noted, however. The Europeans expect larger privatization proceeds through time (€17 billion versus the IMF's €2 billion). In addition, IMF are more concerned about bank solvency given high non-performing loans. And so, while the Europeans now expect €27½ billion *less* ESM funding than envisaged in 2015, when the total envelope was agreed at €86 billion, the IMF set aside an additional €10 billion buffer for bank recapitalization needs and larger draw on ESM funds.

In addition, each have their own interest rate assumptions—for official borrowing and the interest rate at which private borrowing can be sourced. Roughly, the EU Commission sees the official interest rate increasing to close to 2 percent by mid-2020s, and 3.3 percent in the long run; the private interest rate at about 5½ percent to being with, falling through time. The IMF is on average slight more pessimistic.

Together, these fiscal, growth and interest assumptions compound to large differences in the prospects for Greek debt "sustainability"—and necessary debt relief.

Figure 1 recreates the EU Commission baseline forecast for Greece public debt-to-GDP (left) and Gross Financing Needs (right). It shows debt-to-GDP dipping below 100 percent in 2060. Onto this baseline we fold the impact of various IMF assumptions. With IMF growth, the EU baseline would increase to 120 percent debt-to-GDP in 2060; together the IMF's primary balance and growth takes this to 160 percent and so on.

Figure 2 decomposes the cumulative drivers of the EU Commission's baseline. Debt-to-GDP falls about 80 percentage points by 2060, mainly driven by nominal GDP growth—the denominator effect—which reduces debt-to-GDP by about 170 percentage points. The primary

surplus meanwhile subtracts about 100 percentage points, with the cumulative impact of interest payments adding about 190 percentage points through 2060. Together, the primary surplus and growth assumptions are enough to drag down the debt-to-GDP below 100 percent despite the heavy interest bill.

Fully, Greece will pay about €800 billion in interest through 2060 which, with a 4 percent discount rate, is slightly more than €300 billion in net present value terms—or about 170 percent of GDP!

The EU Commission's baseline illustrates the importance of global interest rates and the premium Greece must pay. Yet any interest rate forecast over the next 45 years is no more than guesswork. Indeed, scenarios where the interest rate remains low for a protracted period—think Japan on a global scale—seem reasonable. Against this, the growth assumptions appear optimistic.

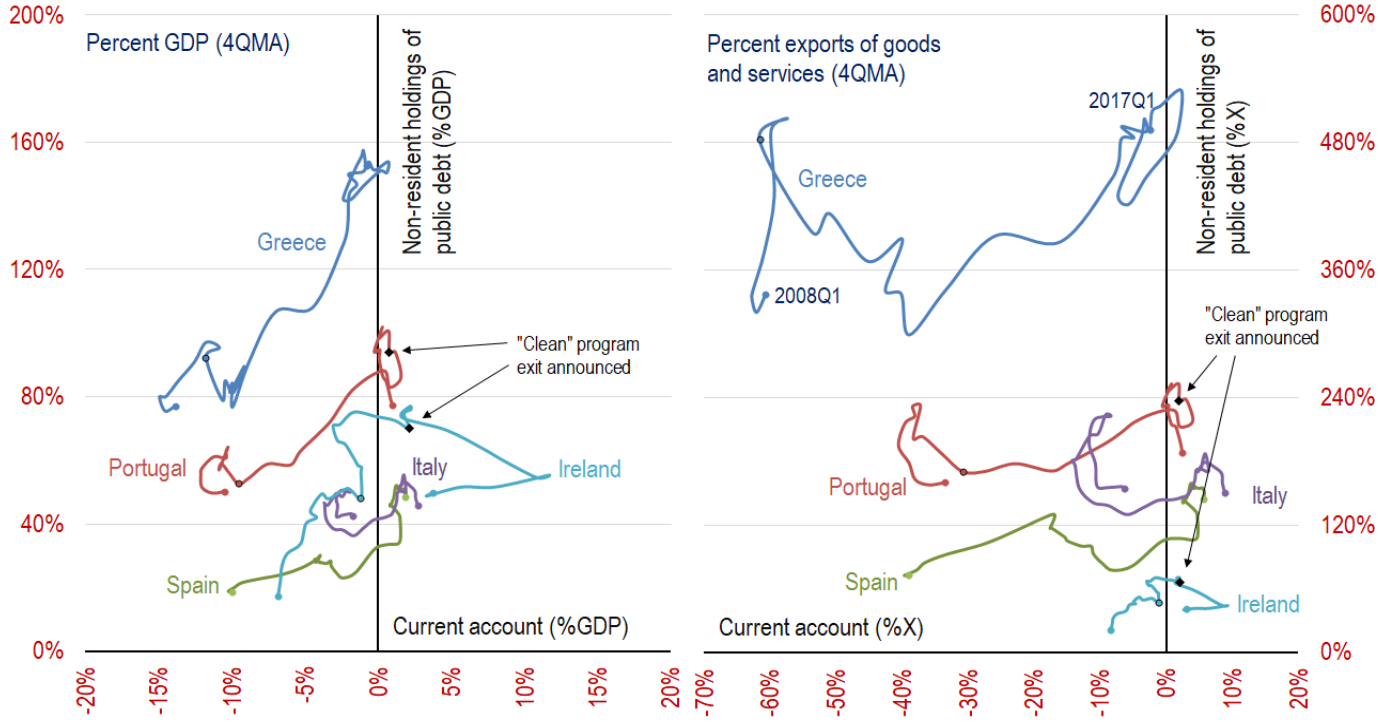
The right chart in Figure 2 therefore recreates the EU Commission and IMF baselines assuming fixed 2 percent official and 4 percent private interest throughout. In this case, Greek debt dynamics look much more favourable—in the Commission baseline falling below 60 percent by 2060. With nominal growth at ¾ the EU Commission baseline, however, debt-to-GDP returns close to 100 percent in 2060.

In any case, this all serves to highlight how, as the Greece fiasco approaches its final stages, the institutions are now engaged in a game of Debt Sustainability Wars:

The Eurogroup has agreed to implement a "second set of [debt relief] measures" for Greece whereby some re-profiling of debt could occur "according to an operational growth-adjustment mechanism" on the basis of an "updated DSA *in cooperation with the European institutions*."

For the IMF, their Approval in Principle arrangement means IMF

Figure 4: Peripheral Europe: Evolution of Non-resident Holding of General Government Debt against Current Account (4QMA) between 2008Q1 and 2017Q1



resources will only be released "conditional upon Greece's European creditors providing commitments for debt relief sufficient to secure debt sustainability." But the IMF's judgment as to debt sustainability will "be guided solely by the IMF's *own debt sustainability analysis*."

Meanwhile, not to be outdone, Governor Draghi has insisted, in the context of possible inclusion in the Asset Purchase Program, the ECB will conduct its own assessment of debt sustainability. Even the fledgling ESM is in on the act.

DSAs are all the rage!

Curiously, whereas the IMF's "expertise" was insisted upon in 2010, the EU now sees outside support as a hindrance and not a help.

And lament we might! The Troika's marriage is loveless. Seven years have passed and in different beds they sleep. Worse, given past failings it seems unlikely "European institutions," with or without IMF oversight, will concoct a sensible "growth adjustment mechanism" for Greece—not least they are yet to recognise why the original Greek program went awry. To this we now turn with a view to prospects thereafter.

The Greek transfer problem

THE MACROECONOMIC challenge facing Greece in 2010 was side-stepped from the start—driving, in turn, policy missteps.

Figure 3 highlights the truly extraordinary non-resident purchases of Greek government debt—capital inflows—during the decade from 1999. The left chart uses the Bank of Greece's excellent flow of funds data—recorded at market value of transactions—to track the 4-quarter sum of non-resident and resident purchases of Greek debt. It also shows the fiscal balance throughout.

Between 1999 and 2009 the cumulative fiscal deficit was about €150 billion; meanwhile, total flows of Greek liabilities at market prices was €180 billion (left chart), of which about €160 were purchases by *non-residents*—meaning, roughly, the entire deficit was funded by non-residents—although this does not imply primary market purchases.

As a result, in terms of the face value of debt outstanding, by 2009 about 80 percent was held by non-residents (right chart)—up from 60 percent in 2003 and, by flow of funds market value data (not shown), from 25 percent in 1998.

Crowded out of their own sovereign's debt, Greek banks sought, and found, alternative means of generating income—intermediating savings domestically, lowering lending standards, contributing pro-cyclically to demand.

Meanwhile, whereas under a traditional fixed exchange rate arrangement the Bank of Greece might have absorbed part of this immense capital inflow through reserve accumulation, the fledgling currency union made this not only impossible but apparently unnecessary.

In addition, note how as the Crisis hit—with the price of Greek bonded debt in freefall—domestic financial institutions began purchasing from non-residents GGBs at discounted prices. In 2010-11 Greek intermediaries bought about EUR25 billions of government bonds at prevailing market prices—equating to roughly 30 percent of the total face value outstanding!

Thus, temporarily, the non-resident share in the *face value* of Greek debt fell below 50 percent in December 2011 (right chart). But the debt exchange of March 2012 upset

hopes of capital gains; substantial losses were recorded instead, requiring recapitalization via *additional* program funds—as well as eventually triggering the Cyprus bailout.

In this way, non-resident ebullience and over-exposure to Greece was eased not simply through the flawed 2010 bailout—and ECB purchases under their SMP program—but also through the miscalculation of domestic financial institutions. And the so-called domestic bank-sovereign doom loop is misleading. There would have been no such "doom loop" for Greece had the euro area the institutional frameworks in place along with analytical foresight to trigger restructuring in 2010.

And so, Greek external debt remains about 85 percent of the total outstanding stock—itself about 170 percent of GDP.

And this burden of *external* government debt has always set Greece apart from other euro area peripheral countries. Figure 4 shows the evolution of the face value of government external debt against the current account in percent of GDP (left chart) and in percent of exports of goods and services (right). The chart shows data for Greece, Ireland, Italy, Portugal and Spain between 2008Q4 and 2017Q1—the earliest point is the left-hand dot in each case.

Greece entered the Crisis with not just with high public debt, but much higher share held *externally* (90 percent of GDP, 480 percent of exports). Moreover, Greece was running a substantial current account deficit at the time (15 percent of GDP)—again larger than comparators.

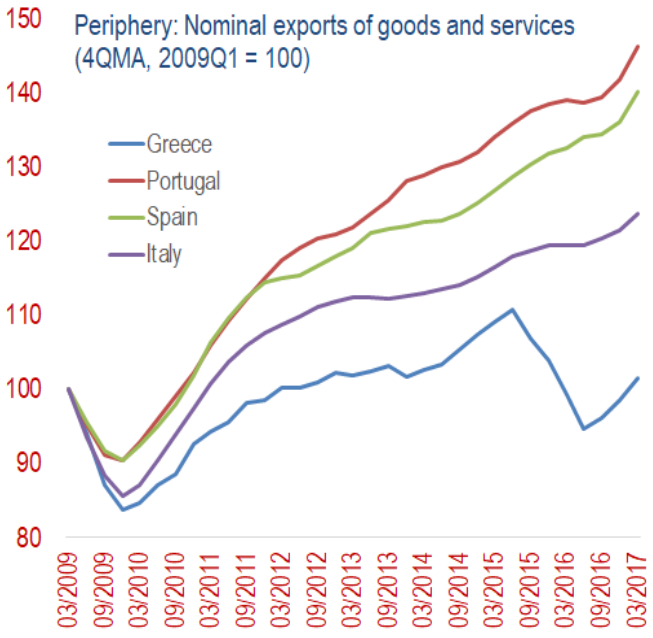
This challenge was nearly identical to the Transfer Problem facing Germany in the 1920s. Of German reparations, Keynes noted the "Budgetary Problem" of "extracting the necessary sums of money out of the pockets of the German people"—and

Table: Peripheral change in current account (2008Q4 to 2017Q1)

	Greece	Portugal	Spain	Italy	Ireland
CA adjustment (%GDP)	13.8%	13.1%	11.1%	5.5%	10.0%
Latest CA (%GDP)	-0.8%	1.0%	1.9%	2.7%	3.7%
Latest external public debt (%GDP)	152.8%	77.5%	48.5%	45.7%	49.8%
Exports/GDP 2008Q4 (NIPA)	23.3%	31.1%	25.3%	26.9%	84.1%
	Geometric average goods and service export growth				
2009Q1 to 2017Q1	0.2%	4.9%	4.3%	2.7%	9.9%
2000Q1 to 2017Q1	4.0%	5.1%	5.1%	3.6%	8.5%

the "Transfer Problem"—of "converting the German money so received into foreign currency" in order to repay this external debt are two distinct challenges. And Keynes objected to the "view ... widely expressed that the Transfer Problem is of quite secondary importance and that, so long as the Budget Problem is solved, the Transfer Problem will, in the main, solve itself."

Instead, the problem was in achieving fiscal adjustment while *simultaneously* transferring resources from non-traded production towards exports (see Annex). Yet this has been overlooked in Troika analysis throughout the Greek Crisis—the tacit



assumption being that austerity could be treated orthogonal to external adjustment. The balance of payments was simply *assumed* to passively adjust to meet growth assumptions—disconnecting macroeconomic projections from fiscal adjustment. This resulted in a succession of flawed GDP projections (Figure 5, left chart) which now begin to resemble an outstretched hand begging for food.

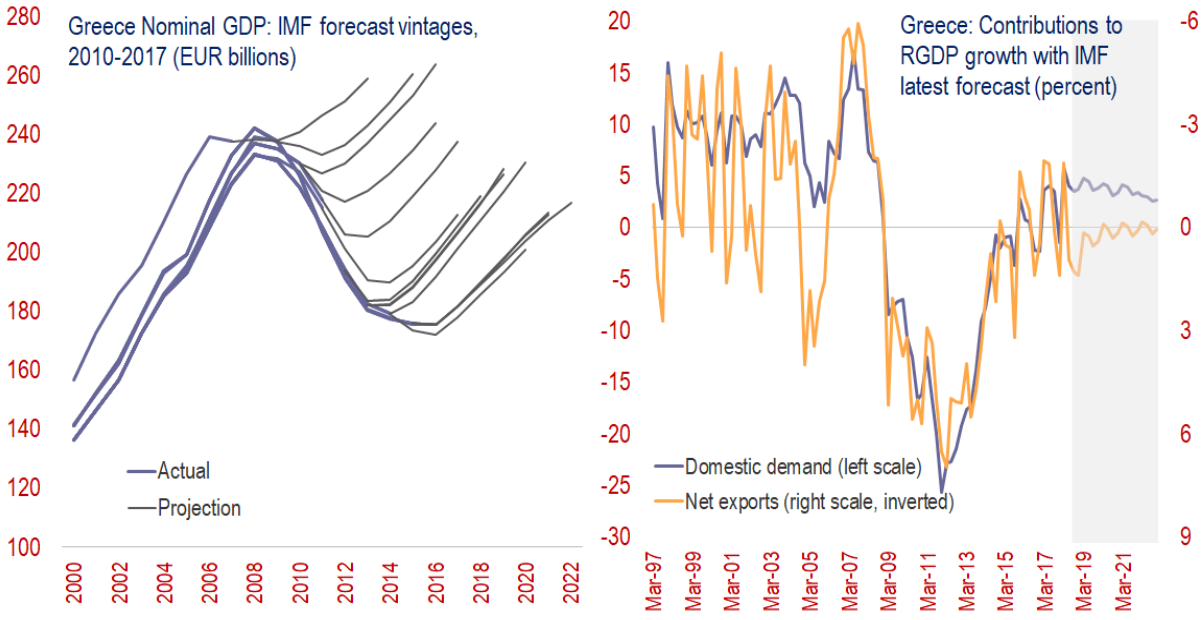
Thus, absent symmetric expansion in Core Europe—and offsetting export growth—Greece followed the same pattern, though more severe, of contracting domestic demand and imports as revealed across the periphery (Figure 4). In each case, the current account swung from large deficit to small surplus after which the Crisis would abate, domestic demand stabilize, yields moderate. Indeed, in the case of Portugal and Ireland, "clean" program exits were achieved only once their current accounts registered surpluses. For Italy and Spain, yield compression accelerated at this point.

Having recently passed the 5-year anniversary of Draghi's "Whatever it Takes" speech of July 2012 it is worth reflecting how—important as it was—this speech only really bought time for the completion of peripheral current account compression. Indeed, consider how the same pattern of current account adjustment-cum-stabilization played out identically in the Baltic states in 2008 and 2009 (not shown). They could not benefit from Draghi's intervention, but their stabilization followed external adjustment. In other words, Draghi didn't save the euro area in 2012, but Depression did!

Why does this happen? The current account, as a debit item, records interest on all external debt as part of primary income. Once a surplus obtains there is enough foreign exchange generated—roughly a surplus of exports over depressed imports—to service external debt *without resort to additional borrowing from abroad*.

Alternatively, seen in terms of saving-investment balances, a surplus on current account means the domestic private sector is saving enough to fully finance both private investment and the fiscal deficit—with some foreign exchange to spare. Foreign financing is no longer necessary.

Figure 5: Greece historical GDP forecast errors (left) and latest RGDP forecast (right)



A current account surplus sends a strong signal that the crisis will, at last, abate. With this background, we can now contemplate how the Crisis might be resolved from here?

What happens next?

OF LATE, Greece's current account has come close to registering, but has not yet equalled, surpluses achieved by her comparators at the time their crises abated. Against this, Greek public external debt remains much larger.

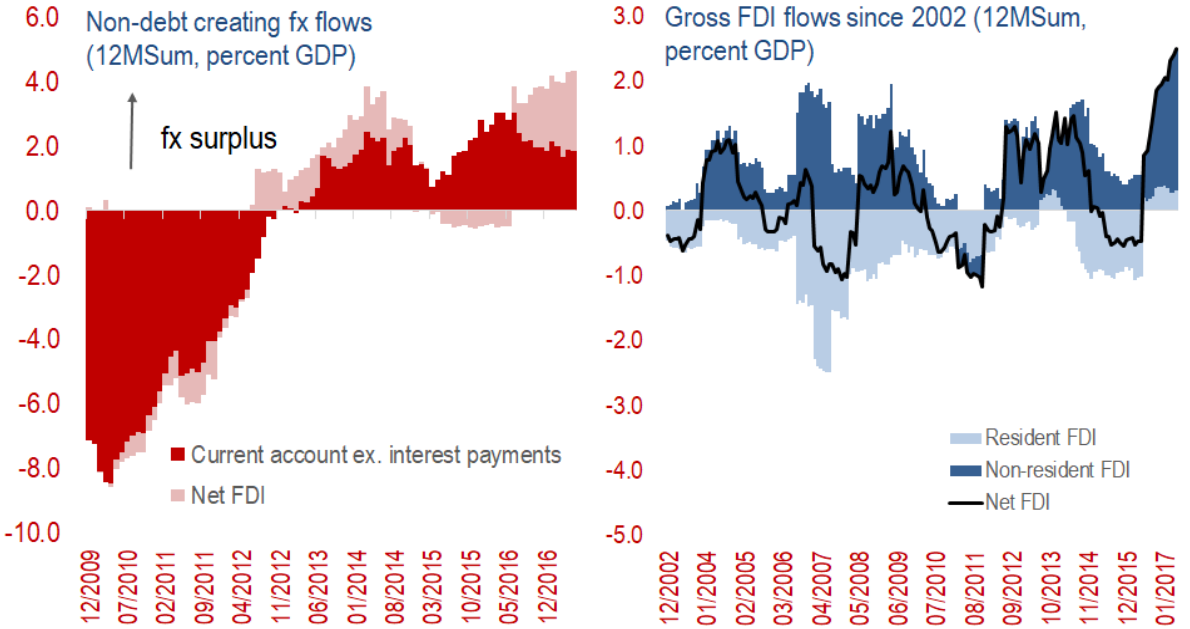
What next? Four things are worth noting:

First, Greece experienced the largest current account adjustment since 2008Q4—nearly 14 percent of GDP (see table). And this adjustment challenge was exacerbated by the lowest initial ratio of goods and service exports-to-GDP as well as the weakest export performance since (text chart). While export recovery was already lagging in Greece compared to other peripheral countries, the mid-2015 creditor showdown provided a further set-back such that nominal exports today are scarcely higher than in 2009. The largest burden of adjustment has, to date, fallen on domestic demand and import compression. Fortunately, there is scope for catch-up through export recovery as financial conditions ease.

Second, while Greece's current account today (-0.8 percent of GDP, 4QMA 2017Q1) remains below that registered by Portugal (+0.8 percent) and Ireland (+2.1 percent) at the time of their clean program exits, in cash terms Greece's external position is a stronger than the headline figure implies. This is due to the fact Greece benefits from interest deferral of €1-1½ billion (½-1 percent of GDP, see Table 2 and Table 7) over the forecast horizon, meaning in cash flow terms her current account is near balance. Greece therefore generates roughly all the foreign exchange cash flow needed *at the moment* to service external debt. There is a decent case that, with export recovery, program exit is near.

Third, more important, Greece is currently experiencing her largest foreign direct investment (FDI) inflow—that is, net non-debt creating

Figure 6: Greece is in the strongest position since the Crisis in terms of current account (excluding debt repayments) and net FDI inflows; this surplus fx can be used to repay external debt



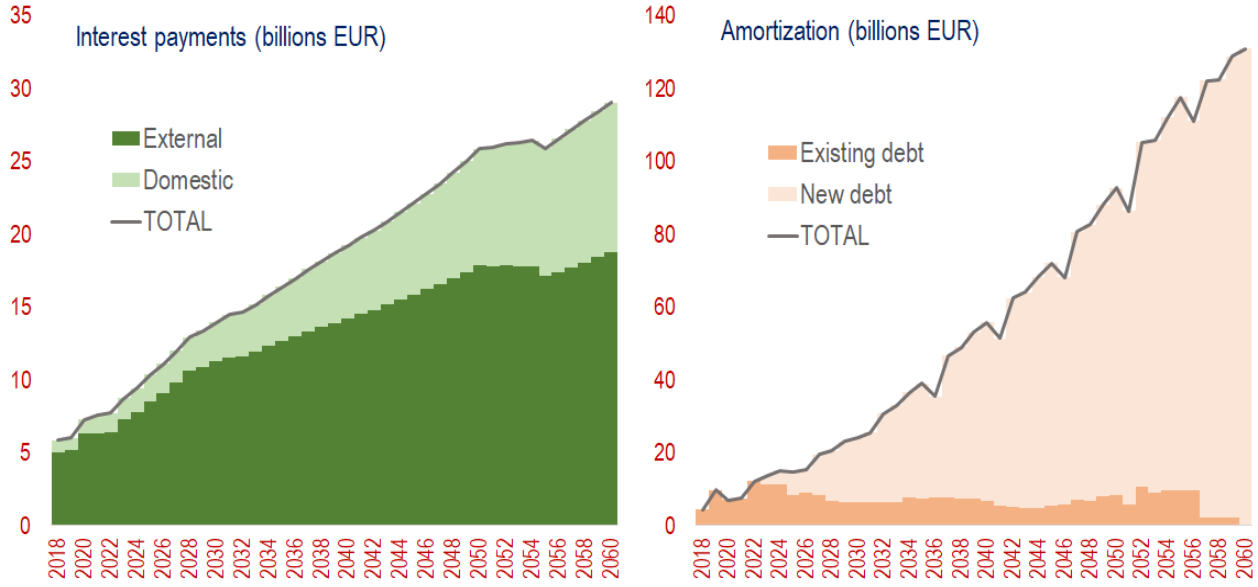
investment from abroad—since joining the euro (Figure 6, right chart). This is reflected in both resident FDI repatriation and large non-resident investment inflows totally 2½ percent of GDP. Together with the current account (ex. interest) surplus, Greece now creates 4¼ percent of GDP foreign exchange—without taking on any more external debt—with which to service external debt at 2 percent of GDP—of which about ½ percent is deferred (Figure 6, left chart). In this respect, for perhaps the first time since the Crisis, the Greek Transfer Problem has been solved.

Fourth, there remains the possibility of inclusion in the ECB's Asset Purchase Program (APP). This would not necessarily generate foreign exchange *inside* Greece to recycle towards servicing external debt since many Greek bonds are held by non-residents. However, APP inclusion would cause bond yields to compress further—as elsewhere in the periphery—and catalyse other capital inflows to Greece. Further easing the external constraint, this would allow for domestic demand pick-up and the sustained recovery as witnessed elsewhere. That said, APP inclusion seems unlikely until mid-2018—by which time bond buying could be near an end.

Overall, the improvement in Greece's external position—with or without APP inclusion—implies a period of recovery ahead. But this was also the case in 2014, when the Samaras government was expecting debt relief from the Europeans—having generated a primary fiscal surplus as agreed end-2012 (Figure 5, left chart). When this promise was reneged upon—eying elections ahead—Samaras turned populist, causing a stand-off with creditors. The rest is history. With the next Greek election due on or before October 2019, will this turmoil be repeated?

Near-term, problems will only re-emerge for Greece if: (i) fiscal slippage requires additional unpalatable fiscal measures causing renewed recession—as already legislated in the IMF's program, against which the authorities hope to push; or (ii) regardless of the fiscal outcome, the Europeans try and prevent clean program exit—sparking further political turmoil in Greece. Such developments would re-awaken once more those calling for Grexit. But

Figure 7: Greece nominal interest payments and amortization schedule



with some forbearance and political will, Europe can quite reasonably support Greece in some form of program exit—if not entirely clean, then with a precautionary ESM backstop. As such, absent negative political intervention, the Greece success story has some way to run.

If this proves to be the case, the main risks will only re-emerge once external debt service fully kicks in. And with scope for decent out-performance in Greek GDP, European institutions might feel emboldened into thoughtlessly implementing a "growth adjustment mechanism" based on their currently DSA framework. Consider how the EU Commission fails to distinguish external from domestic demand, does not project the current account or financial flows for Greece.

Why does this matter? This leads us once again back to the German experience in the 1920s. A caricature: facing reparation payments, following the Dawes Plan, Germany engaged in large-scale external borrowing to sustain demand and avoid the balance of payments constraint. This largesse was exacerbated by a mechanism whereby Germany's private creditors had first claim on her foreign exchange surplus. As a result, rather than running a trade balance surplus as the logical counterpart to reparation payments, Germany's current account deficit widened into the late-1920s. When official creditors eventually tried to call in reparations and reassert a claim on Germany's foreign exchange earnings, this triggered private capital flight and a sharp current account compression (See, e.g., Albrecht or Tooze). Having experienced one extraordinarily painful sudden stop, it is incumbent on the international community that this should not happen again to Greece.

The EU institutions, in their design of the post-Crisis framework for Greece, ought therefore be able to fully account for *future drivers* of nominal GDP growth.

Suppose nominal GDP growth is driven by export growth and/or net FDI inflows, thus generating foreign exchange needed to service external debt without creating new external debt. This would be a favourable means of helping Greece recover.

However, as in 1920s Germany, if growth is instead driven by the accumulation of net private external debt—and government external debt simply replaced by opportunistic private external debt—then the prospect of a renewed widening of the current account deficit and danger of a sudden stop cannot be ruled out. And the period until 2022 where external interest payments and amortization remain contained is an opportunity for private capital inflows once more (Figure 7).

Clearly, this is a difficult line to walk. But any "growth adjustment mechanism" for Greece ought provide for sustainable recovery.

More generally, there is a case for the primary surplus to move counter-cyclically to net external debt creation—in Greece and elsewhere. That is, absent a central bank policy—through reserve creation—to offset booms and busts created by the ebb and flow of external capital flows, the primary fiscal balance provides the only tool for this purpose. For Greece, this would imply a fiscal rule that offsets net private debt creating inflows in the period ahead rather than the current mechanical fiscal requirements.

This could also create an automatic mechanism for expansion in surplus countries—creating a symmetry in adjustment that has been sadly lacking to date. But this is a topic for another occasion.

ANNEX: Greek Sustainability and the Transfer Problem

The Greek challenge reveals the "transfer problem" associated with "debt sustainability." That is, Greece must not only achieve fiscal adjustment, but *simultaneously* shift resources from non-tradeable to tradeable production—that is, to exports—to generate the foreign exchange necessary to service external public debt. This is ignored in Troika DSAs and "program" design.

Four relations unveil a toy model of the Greek economy:

$$Y = DD + X - M \qquad (1)$$

$$M = \gamma Y \qquad (2)$$

$$(X - M) - iB_{-1} = NFDI + NED - \Delta B \qquad (3)$$

$$(1 + i)B_{-1} = S^P + B \qquad (4)$$

Equation (1) shows GDP—domestic demand plus exports minus imports; (2) postulates that imports are a constant fraction of GDP, roughly true; (3) is a simplified balance of payments relation whereby exports minus imports (goods and services) minus interest payments on external debt (primary income account) equals net foreign direct investment or net external debt (negative equals inflows) minus the change in external government debt; (4) is the standard fiscal-debt-sustainability relation.

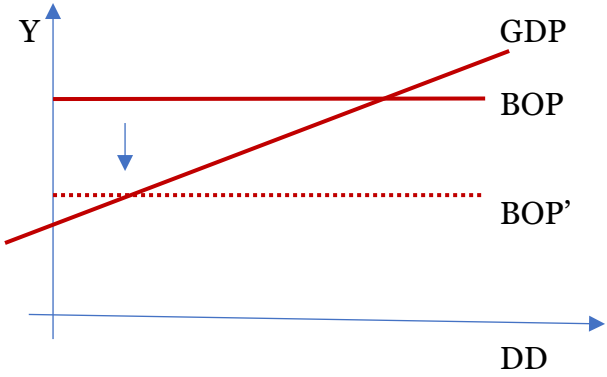
Assume all public debt is external (nearly true, easily generalized) then the primary surplus can only adjust to achieve debt sustainability if the economy *simultaneously* generates the foreign exchange earnings to service this debt. To see this: (1) and (2) combine to give a **GDP relation**:

$$Y = \frac{DD + X}{1 + \gamma}$$

while (2), (3) and (4) give a **BOP relation**:

$$Y = \frac{X}{\gamma} - \frac{S^P + NFDI + NED}{\gamma}$$

Here, GDP and domestic demand are "endogenous." Plotting DD on the x-axis and GDP on the y-axis, they are determined by the intersection of the GDP relation and BOP relation:



During the expansion, growing primary deficits ($\Delta S^P < 0$) not offset by capital outflows ($\Delta NFDI > 0$, or reserve accumulation, not shown) lead to an expansion in domestic demand and GDP—thus current account deficit. In reverse, the move to primary surplus (shown as BOP shift to BOP'; $\Delta S^P > 0$) will result in a compression in domestic demand and GDP *unless this can be offset* by net capital inflows ($\Delta NFDI + \Delta NED < 0$) or an offsetting expansion in exports ($\Delta X > 0$). Alternatively, import content of GDP could be reduced (lower γ).

The fiscal multiplier here is γ^{-1}. Since Greek nominal imports of goods and services-to-GDP is about 0.3, this implies a fiscal multiplier around 3—but this would appear smaller if offset by exports, foreign investment inflows, falling γ.