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CONDITIONS AND STRATEGIES FOR ECONOMIC RECOVERY

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Summary

The Greek economy has the potential to recover, and in this report we argue that access to alternative financing sources could provide the impetus and liquidity needed to grow the economy and create jobs. For this to happen, existing government debt must be rolled over and austerity policies put aside, restoring confidence in Greece's economic future and creating the conditions for sustainable income growth, which will eventually enable the country to repay its debt. Conversely, we show that failure to achieve an agreement with the other members of the Brussels Group implies a further decline in output and income.

Introduction

Members of Greece's newly elected government have been at the negotiation table with the European elite since taking office in late January of this year. The process has been slow, and at the time of this writing no agreement has been reached. Both sides have dug in their heels by insisting that some issues are nonnegotiable, including the level of the primary budget surplus (more austerity is needed to achieve it), additional labor market flexibility, and restructuring the public pension system—the "red lines" that the government promised, preelection, it would not cross. The focus now is on crafting creative language in an agreement that satisfies both sides by ending austerity while enabling Greece to achieve the fiscal discipline required to service its public debt and to make its economy even more competitive.

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Notwithstanding the economic ruin of the past six years, the dogma of expansionary austerity lives on. Sooner or later, an agreement will be struck—the longer it takes, of course, the more difficult to achieve the goals of output growth and primary fiscal surplus. Greece has practically run out of money, while its banking system, with a steady deposit outflow and an increasing number of nonperforming loans, is teetering on the verge of collapse. How long this negotiation process will take is anybody's guess, although June 30 has been assumed to be the drop-dead date. In the meantime, as we will show, conditions have not improved as yet, and all bets are on increased tourism activity. The current year, therefore, will most likely end in either a negative or a very small increase in GDP. Last year's small primary surplus might be difficult to repeat this year, and in all likelihood employment growth is stuck in neutral. In what follows, we first review many aspects of the Greek economy's performance using the latest data available, and then run simulations of various alternative scenarios for the next three years, including a "pessimistic" scenario should "the institutions" (the new name for "the troika") manage to succeed in getting their way. But let us begin at the beginning.

Estimates of real output for the Greek economy, published by the Hellenic Statistical Authority (ElStat), showed some signs of recovery up to 2014Q3, after six long years of uninterrupted fall in output, even though the fourth quarter of 2014 and preliminary estimates for the first quarter of this year show a reversal that, if it continues in the second quarter, will indicate the economy has slipped back into recession (Figure 1).

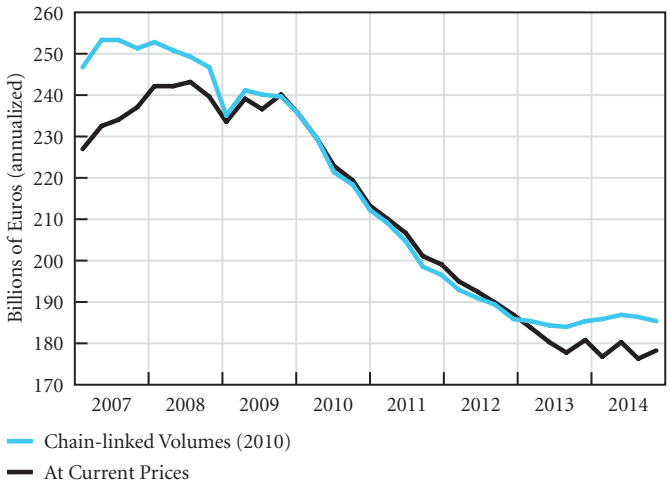
Real output, at the end of 2014, was below its 2000 level, marking a more than 26 percent drop from its peak in 2007, while an even larger fall—30 percent—in employment has been recorded. More than one million workers have lost their jobs relative to the previous peak in 2008, with an increase of 800,000 unemployed—the total now stands above 1.2 million—while the active population is shrinking, as workers leave the country in search of better opportunities abroad.

Can the positive signs of 2014 be sustained, putting the economy, finally, on the road to recovery? Can the new government expect markets to create jobs at a sufficient pace and tax revenues to increase? As we will show, unless an appropriate plan to rescue the Greek economy is quickly implemented, the answer is no.

Real and Nominal Output

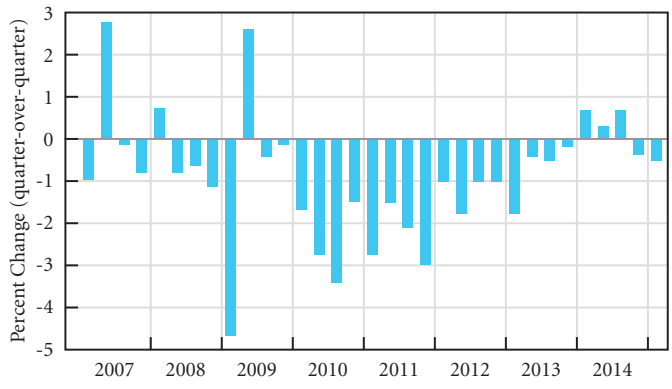
While a recession ends when real GDP increases, it is hard to believe that the Greek economy is indeed recovering, even after three consecutive quarters of increased output.[1] Indeed, as Figure 2 documents, despite some growth in the tourism sector, total real output has fallen again, in both the last quarter of 2014 and the first quarter of 2015.

Figure 1 Greece: GDP



Source: ElStat

Figure 2 Greece: Real GDP Growth

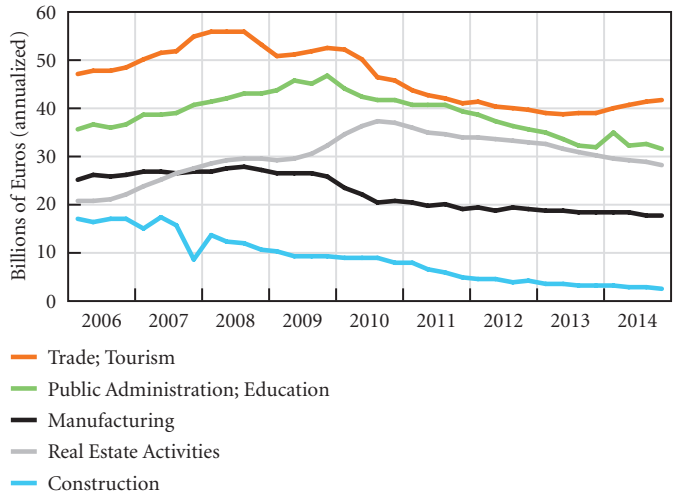


Source: ElStat

One reason for our disbelief is the prolonged fall in nominal output, which in the last quarter of 2014 was still 0.8 percent below its level in the same quarter of the previous year, and the fall in the first quarter of 2015 was even larger in comparison to the same quarter in 2014. The difference between the positive growth in real output and the negative growth in nominal output is due to falling prices, as measured by the GDP deflator and its determinants.

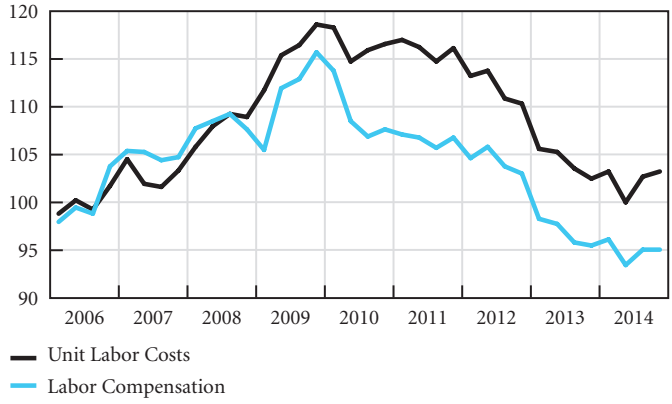
In Figure 3, we report the details of nominal value added in the main sectors of the Greek economy. It can be clearly seen that the only recovering sector is the one related to tourism:[2] from its low of €38.8 billion in 2013, value added increased to €41.7 billion in 2014Q4. In real terms, value added in this sector increased by 6 percent in 2014. Other sectors continued to fall, with construction registering the largest drop in real terms (negative 16 percent!), and manufacturing down by 2 percent at the end of the year.

Figure 3 Greece: Value Added by Main Sectors



Source: ElStat

Figure 4 Greece: Labor Cost Indices (2006=100)



Source: OECD

Deflation and Competitiveness

The "structural labor reforms" so violently imposed by the country's international lenders have been effective in reducing the cost of labor. The most recent measure—the index of wages published by ElStat—documents a fall of 22 percent at the end of 2014 from the peak in 2010. In Figure 4, we report the OECD (Organisation for Economic Co-operation and Development) measure of unit labor costs and an index of labor compensation. The former was down by almost 20 percent at the end of 2014 relative to its peak in 2010, while the latter was down by 17.8 percent.

These declines are not uniform, and for some sectors labor compensation has decreased even more. For instance, in the "Accommodation and food service activities" category, which includes tourism-related activities, the index of wages in the third quarter of 2014 was 40 percent below its 2008 level.

The fall in wages can also be assessed in relation to other eurozone countries. This is shown in Table 1 using OECD data on average annual wages.[3] The data in Table 1 illustrate that Greece was the country that—starting from the second-lowest wage level in 2000—had the best performance leading up to the 2007 crisis, with an increase of 24 percent. Notwithstanding the positive impact of this on living standards, even at their peak, wages were only 66 percent of comparable

Table 1 Selected Eurozone Countries: Average Annual Wages (in 2013 euros, and relative to Germany)

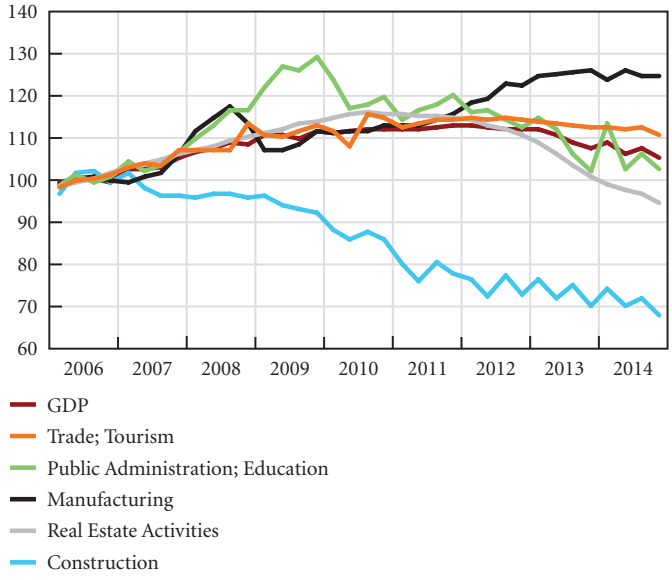
	2000		2007		2013	
	Euros	Percent	Euros	Percent	Euros	Percent
France	31,383	91.9	34,004	98.7	35,574	99.0
Germany	34,134	100.0	34,465	100.0	35,943	100.0
Greece	18,291	53.6	22,760	66.0	18,495	51.5
Italy	29,046	85.1	29,505	85.6	28,919	80.5
Portugal	15,900	46.6	16,082	46.7	16,517	46.0
Spain	26,015	76.2	25,899	75.1	26,770	74.5

Source: OECD

Figure 5 Greece: Inflation

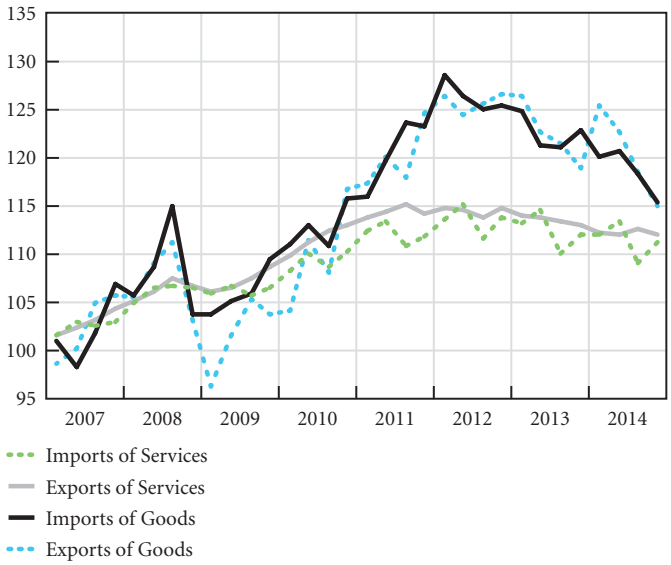
Source: ElStat

Figure 6 Greece: Price Deflators by Main Sector (2006=100)



Source: ElStat

Figure 7 Greece: Price Deflators for Trade (2006=100)



Source: ElStat

wages in Germany. These gains were subsequently completely erased by the crisis, pushing Greece's economy relative to Germany's back to the pre-euro-adoption days.

If high unit labor costs resulting from high wages were one of the major problems contributing to the noncompetitiveness of the Greek economy, this problem has certainly been "cured" by austerity. The fallacious theory behind this approach implies that a country should, in a relatively short time, restore its competitiveness and enjoy the benefits of lower production costs, which would significantly improve its trade performance.

The analysis of inflation, in Figure 5, shows that prices have indeed been falling, albeit not as fast as wages. The last report on inflation issued by Elstat shows the economy continuing its deflationary trend, with the April 2015 Consumer Price Index (CPI) recording a -2.1 percent change, as compared to the -1.3 percent change in April 2014. Deflation in Greece, then, does not seem to be a temporary phenomenon: CPI has declined every month for the last 26 months. While prices for food and other necessities have not declined—to the contrary, prices have risen—the major decline in CPI is reflected in housing costs, clothing, health and education, transportation, recreation, and durable goods.

The decomposition of price dynamics casts even more doubt on the hypothesis that internal devaluation restores competitiveness. In Figure 6, we report price indices for GDP and the major components of value added. As the figure shows, prices have not followed the declining trend of wages and compensation, with the exception of the collapsed construction sector, with real value added down by 76.6 percent in 2014 against its precrisis peak in 2006. The GDP deflator is still 7 percent above its 2006 level and 5 percent lower than its

peak at the beginning of 2012, while the deflator for the relatively small manufacturing sector[4] has trended upward, marking a 24 percent increase in 2014 against 2006.

Similarly, in Figure 7 we report the price deflator indices of the components of trade. Relative to their peak in 2012, the prices of exported goods have fallen by 9 percent but are still 16.7 percent above their 2007 level.[5] The price deflator index for services peaked in the third quarter of 2011 and has since fallen by only 2.8 percent, a drop not large enough to support an increase in exports through increased price competitiveness.

We contrast these price indices with those of selected eurozone partners in Figures 8 and 9. According to these indicators, price competitiveness for Greece, in the goods markets, continued to deteriorate until 2012, and the fall in prices has not been sufficient to bring the index in line with those of Greece's partners.

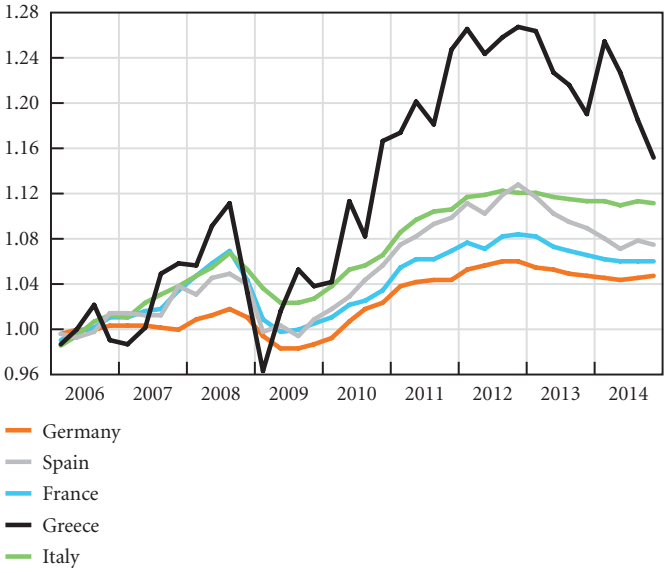
Exports of services—which include tourism—had the worst price performance until 2012, but that performance has now somewhat recovered, albeit not to a sufficient extent to improve exports quickly through price elasticity effects.

One pillar of the troika strategy was to address Greek external imbalance through "internal devaluation"; that is, a reduction in wages and unit labor costs that would increase price competitiveness. Even though this strategy has been very effective in reducing nominal and real wages (as documented above in Figure 4 and Table 1), it has thus far failed to generate a fall in prices that would sufficiently address the country's trade imbalance. Domestic prices have been prevented from falling due to the increases in indirect taxes: the ex-post indirect tax rate has gone up by 2 percentage points since the last quarter of 2013.

Recent dynamics in exports and imports seem to confirm what we have documented in our previous reports: income elasticity is more relevant for trade than price elasticity, and most of the improvement in the current account balance stems from the dramatic fall in imports from declining incomes, while the improvement in exports of goods is mainly due to changing specialization (increased activities related to oil products) and/or changing trading partners (increased trade to noneurozone countries). The increase in tourism is partly explained by the instability in countries like Egypt, Turkey, and others in the wider Middle East region that compete directly with Greece for tourism income.

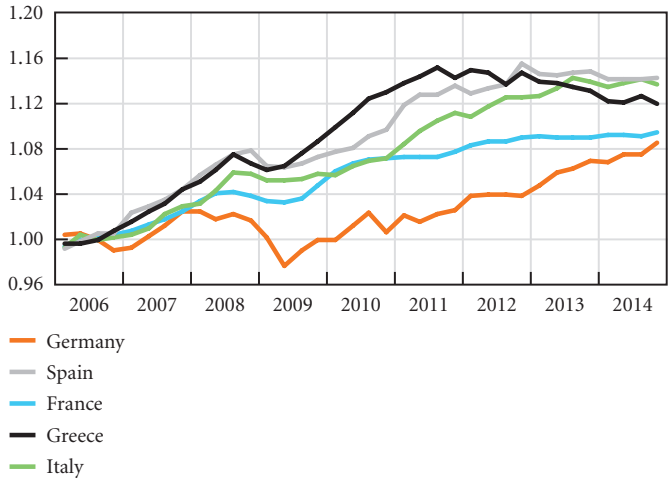
And if improvement in price competitiveness has had an effect on Greek trade, it has, so far, been minor.

Figure 8 **Eurozone Countries: Price Deflators for Exports of Goods (2006=100)**



Source: OECD

Figure 9 **Eurozone Countries: Price Deflators for Exports of Services (2006=100)**



Source: OECD

When wages fall faster than prices, profits should rise. In Figure 10, we report two measures: the gross operating surplus of nonfinancial corporations, and their net lending relative to GDP. Greece's gross operating surplus had recovered to its precrisis level by the end of 2013 but fell again in 2014, likely because of increased taxation. The increase in firms' operating surplus has not translated into higher investment, which instead continues to fall. Firms may have used retained profits for deleveraging, as is shown by the strong increase in net lending in Figure 10.[6] Again, if the purpose of internal devaluation was to increase profitability in order for investment to recover, the strategy has succeeded only in sustaining profits in the face of falling output and sales—and only up to 2013—without any consequence for investment, as shown by the collapse of gross capital formation.

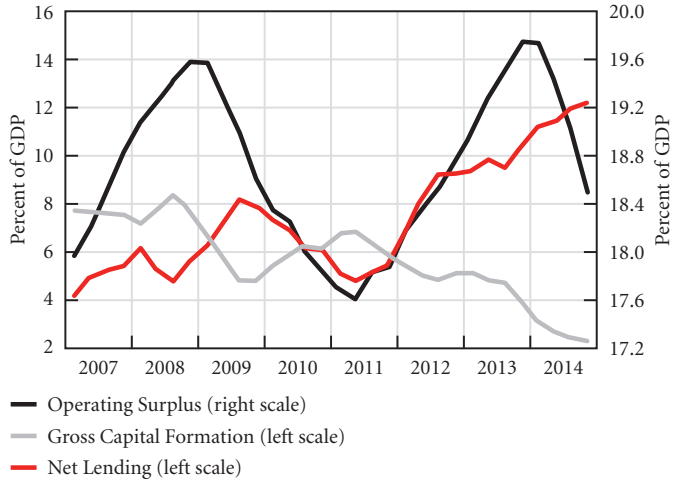
Our final word on the internal devaluation and deflation is that the biggest contributors to the drop in prices are the construction and real estate activities sectors (Figure 6), which caused rental income in 2013 to be down 27 percent compared to 2006.[7] Deflation in Greece is, therefore, taking the form of a free fall in wages, with prices following suit less rapidly, generating a substantial drop in real income that has led to the collapse of domestic demand.

Financial Assets and Liabilities

The second pillar of the troika plan was the reduction in government debt as a share of GDP. This target has not yet been achieved, and the overall stock of debt, after the haircut, has returned almost to its precrisis (2009) level in *nominal* terms (Figure 11). Since GDP has been falling, the debt-to-GDP ratio has increased considerably, at market value, from a low of 106 percent of GDP at the end of 2011 (after the haircut) to 178.5 percent of GDP at the end of 2014.

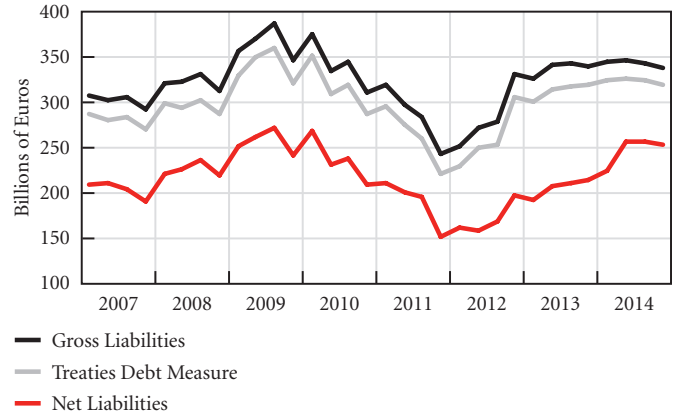
Why has gross debt increased during the posthaircut austerity period? The data from the nonfinancial accounts of the government show cumulative net government borrowing of €42 billion over the 2012–14 period, the largest part of which (€33 billion) is made up of capital transfers to the banking sector. If we take capital transfers out of the equation, the cumulative government deficit over the same period was €21.5 billion, while interest payments amounted to €22 billion. In other words, *the increase in government debt over this period was due entirely to payments to the financial sector.*

Figure 10 Greece: Profits and Investment in Nonfinancial Corporations (Four-quarter Moving Averages)



Source: ElStat

Figure 11 Greece: Government Debt



Source: Bank of Greece

How have the successive Greek governments used the international loans? The loans obviously helped to finance the overall deficit, but a reconstruction of how international loans changed the government's net asset position, and how much funds remained in the end to help Greece recover, is of interest.

Using the data available from the flow of funds published by the Bank of Greece and the sectoral accounts published by ElStat, we have the following:

Table 2 Greece: International Loans and Government Payments (billions of euros)

	2010	2011	2012	2013	2014	Total
Sources of funds						
1 Long-term loans from abroad	24.3	30.0	110.0	30.8	5.6	200.8
Uses of funds						
2 Purchases of securities held abroad	19.9	24.4	44.3	8.0	7.8	104.5
3 Purchases of financial sector equities	0.2	0.9	0.0	19.0	0.0	20.2
4 Capital transfers	3.7	3.8	8.6	23.4	1.9	41.4
5 Interest payments	13.2	15.1	9.7	7.3	7.0	52.3
6 Residual = 1 – (2+3+4+5)	-12.7	-14.2	47.3	-26.9	-11.1	-17.7

Sources: ElStat; Bank of Greece

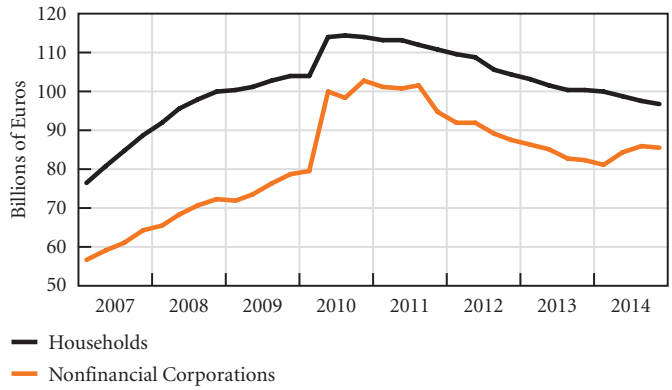
We start by estimating the funds received, using the table on "Financial liabilities broken down by holding sector" and focusing on the line "Long-term loans received from abroad." The majority of these funds have been used to reduce the existing stock of debt held abroad: line 2 in Table 2 is obtained by the change in government long-term debt securities held abroad, which has been negative since 2010. A negative change in liabilities amounts to repurchasing the existing stock of debt.[8] Another significant portion of these funds has been transferred to the domestic financial sector, either by purchasing equities (line 3 in Table 2, obtained from the data on flows of financial assets purchased by the government and issued by the domestic financial sector) or through capital transfers (line 4 in Table 2, which reports total capital transfers of the government).

If we add the total government expenditure on interest payments (line 5), we observe that, overall, the international loans have not been sufficient to meet these expenses.

It could be argued, then, that had the Greek government not recapitalized Greek banks, a major banking crisis would have had even harsher consequences for the citizens of Greece. On the other hand, these funds have not reached the Greek citizenry in any way. All debtors (households with mortgages; nonfinancial firms with loans) who have experienced a severe drop in income (for households) or sales (for firms) are now unable to meet their financial obligations, thus implying a new and possibly large fall in the value of the assets of the Greek financial sector, requiring more government intervention.

Private sector debt is still very large relative to income. Figure 12 documents the amount of long-term loans[9] outstanding for both households and nonfinancial corporations.

Figure 12 Greece: Long-Term Loans Outstanding



Source: Bank of Greece

It is feared that up to 50 percent of this debt—which totals €176 billion—may not be repaid, generating another collapse in the asset side of the balance sheet of the already shaky Greek financial sector.

In our report last summer (Papadimitriou, Nikiforos, and Zezza 2014b), we pointed out that the nonperforming loans (NPLs) of the Greek banks are one of the biggest problems facing the Greek economy and a major symptom of the debt-deflation trap the economy finds itself in today. Data from the Bank of Greece and the European Central Bank (ECB) showed a staggering increase in NPLs during the crisis until the end of 2013—the latest period for which data were then available. One year later, new data show that this trend of increasing NPLs has continued.

Data from the ECB on the gross total doubtful and nonperforming loans as a percentage of total debt instruments,

loans, and advances are shown in Figure 13,[10] which indicates that NPLs increased from 3 percent in 2008 to 27 percent in the first half of 2014. In absolute terms, this means gross total doubtful and nonperforming loans increased from €9.7 billion in 2008 to €78 billion in the second half of 2014.

Figure 13 also includes data from the International Monetary Fund's (IMF) *Global Financial Stability Reports* that cover the period 2007–14. The picture that emerges is similar to that of the ECB estimate: NPLs as a percentage of total loans continued to increase during 2014, albeit at a slower pace.

Meanwhile, fear of potential bank losses has generated a dramatic fall in household deposits in Greek banks, which—although still high at €118 billion in March 2015—dropped by more than €16 billion in the first three months of 2015 (Figure 14).

Will Greece Recover?

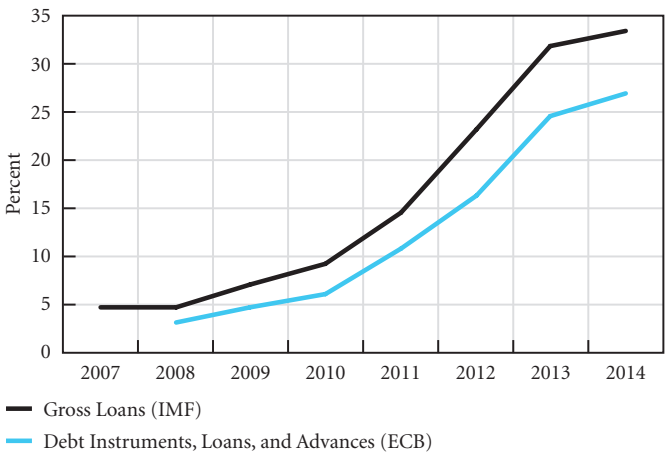
Projections of the possible paths an economy may take are always conditional on a number of assumptions that may fail to hold. The current situation in Greece is even more problematic for running projections, since the Brussels Group's failure to achieve an agreement quickly has put the economy in a state of fundamental uncertainty.[11]

Uncertainty is manifested, for instance, in the rapid fall of household deposits, as illustrated in Figure 14. The fear of extraordinary measures to obtain liquidity to fulfill payment obligations and/or fear of redenomination of euro financial assets into a new national currency led to households withdrawing in excess of €16 billion—more than 12 percent—from their bank deposits in the first three months of 2015. Unconfirmed reports show that deposit withdrawals had reached €30 billion by the end of April.

Almost all of Greece's public debt is held by the IMF, the ECB, and eurozone partners (through the European Stability Mechanism), which are unwilling to roll over maturing debt as it becomes due. The last payments to the IMF in April and May on maturing debt and interest due forced the government to drain liquidity wherever it was available, with rumors of insufficient liquidity to meet ordinary government expenses. There are also rumors of lower-than-anticipated tax revenues since January 2015 contributing to the liquidity shortage. And, more probable and even more important, the ECB is warning of a deeper haircut of the government debt used as collateral for providing liquidity from its Emergency Liquidity Assistance facility.

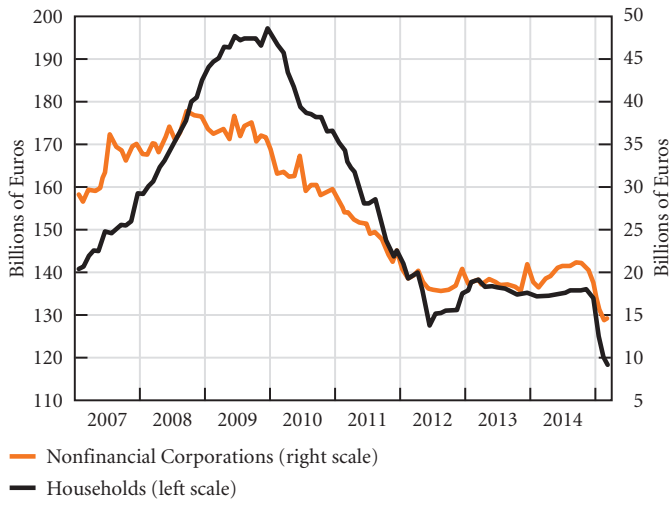
If no agreement is reached and "the institutions" insist on debt repayment, it is inevitable that Greece will default within

Figure 13 Greece: Nonperforming Loans



Sources: ECB; IMF

Figure 14 Greece: Nonfinancial Sector Deposits Outstanding



Source: Bank of Greece

the eurozone, or possibly even exit the eurozone. This outcome would be a consequence of irrational behavior on the part of Brussels, since the costs of a Greek default would be larger than those arising from an agreement under the government's proposals. Another unlikely outcome would be for the new government to accept the previous conditions of the Memoranda of Understanding, implementing further fiscal austerity. Since Greece has achieved a primary surplus (albeit small), and even (some of) the institutions now understand that fiscal austerity implies a further drop in GDP, forcing the government to continue cutting public employment would not be effective, and would create further strain on the already devastated Greek people.

As always in our reports, we begin with baseline projections. We adopt an intermediate stance for our first baseline, assuming that a deal is quickly reached, one that does not require further fiscal austerity, while the tranches of existing debt coming to maturity are refinanced at prevailing ECB interest rates and interest rate payments are duly honored.

To obtain our baseline, we follow our usual strategy, which makes "neutral" assumptions on the exogenous determinants of our stock-flow consistent macroeconomic model. Growth in income and prices for Greece's trading partners is obtained from the IMF's World Economic Outlook database, and our measure of foreign demand for Greek goods and services is computed from the shares in exports of the largest of Greece's trading partners. The exchange rate of the euro against the US dollar is assumed stable at its current (low) level; interest rates are assumed to remain stable; and inflation is projected to be negative until the end of 2015, and zero afterward. Equity and housing prices are assumed to stabilize.

Government expenditure in goods and services is assumed to grow moderately, at 1 percent in real terms, while we assume that the ex-post direct tax rate—which fell by four percentage points between the first and last quarters of 2014—increases in 2015, regaining its 2013 level, and remains stable thereafter.

Under this assumption, our model projects a further drop in real GDP of 1.4 percent in 2015, as the fall in private demand more than compensates for the increase in tourism-related activities.

The projected fall in real output by year end is due to the strong decrease in private expenditure, which is only partially offset by an increase in tourism. We should keep in mind that the private nonfinancial sector is still deleveraging, and is expected to continue doing so in our projections. As a consequence of the fall in output, the small primary surplus in government accounts reached in 2014 is eroded. We are assuming that capital transfers to the government, which were about €4 billion in 2014 and about €6 billion in 2013, revert to a smaller amount that is closer to the precrisis average, partially explaining the projected increase in the government deficit and the fall in the primary surplus, as shown in Table 3.

Table 3 Greece: "Pessimistic" Baseline Projections

	2014	2015	2016	2017
Real GDP (% growth rate)	0.70	-1.40	-0.12	1.12
Government surplus/deficit (% of GDP)	-3.56	-5.46	-4.30	-3.92
Government primary surplus/deficit (% of GDP)	0.35	-1.44	-0.13	0.29
Government debt (% of GDP)	182.5	193.9	198.8	199.1
External balance (% of GDP)	3.66	-1.28	1.45	2.53
Exports of goods and services (% of GDP)	32.9	34.5	36.7	38.3
Exports of services (% of GDP)	15.6	16.8	18.3	19.6
Imports of goods and services (% of GDP)	35.3	37.0	36.5	37.0
Employment (millions of jobs)	3.527	3.467	3.471	3.527

Source: Authors' calculations

In Figure 15, we depict the projected paths of the three financial balances. The government current deficit (i.e., without considering net capital transfers) remains roughly stable. Government debt, however, keeps rising relative to GDP, and starts falling only when the improvement in revenues from tourism restores growth from 2017 onward.

We project the current account (without net capital transfers) to remain roughly stable in 2015, and to increase from 2016 onward, mainly due to a rise in exports of services. Again, we assume that capital transfers from abroad, which were almost €12 billion in 2014, revert to their average precrisis level, which explains the deterioration in the external balance reported in Table 3. Employment remains relatively stable, and so does the unemployment rate, which starts falling only in 2017.

The private sector balance in Figure 15 shows that, as a consequence of fiscal conditions and uncertainty, investment will not recover, and both households and nonfinancial

corporations will continue to deleverage: as the path moves below zero, the private sector has a financial surplus, which allows for an increase in net financial assets that will most likely be used to reduce the level of debt outstanding.

In sum, our model suggests that, should Greece be allowed to roll over its existing debt but no longer receives additional external finance—and is therefore unable to pursue expansionary policies—it will suffer another year or more of recession before slowly being pulled out of the crisis by the tourism sector.

More Optimism?

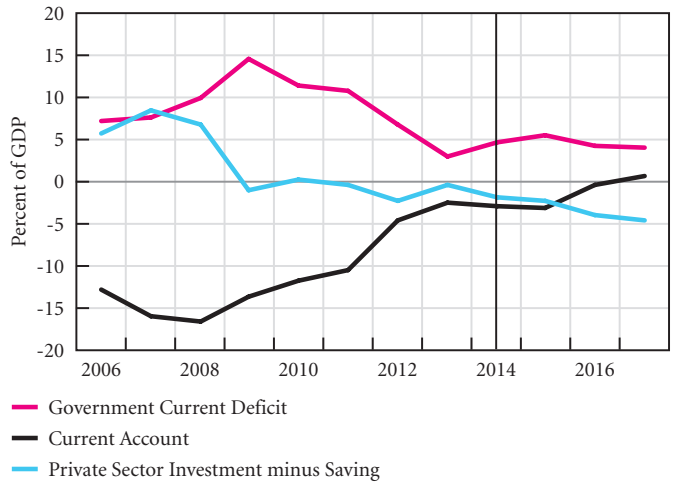
Our baseline projection in Table 3 may turn out to be too pessimistic if a good agreement with the institutions is indeed reached, the projected 10 percent increase in tourism over 2014 materializes, and restored confidence among businesspeople stimulates private investment. This implies that the existing tranches of the debt coming to maturity are refinanced at the current, favorable conditions, and we assume that, in this case, the government keeps paying interest on the existing debt.

For our "optimistic" baseline scenario (Table 4), we assume that additional investment of about €1 billion takes place over the second half of 2015, and that exports of services (tourism) increase by 10 percent over what was assumed in the "pessimistic" scenario. Conditional on these assumptions, real output will grow by 0.97 percent in 2015. Our optimistic baseline projection shows an improvement in the primary deficit in 2015, which does turn into surplus beginning in 2016.

Our optimistic projections suggest that, if confidence is restored in the second half of 2015, the main effects will be felt more strongly in the following year. Real output will also grow in 2015, but not fast enough to have a significant impact on the unemployment rate. In this more optimistic baseline scenario, an additional 160,000 jobs are created by the end of the simulation period—not that many, given the current numbers of unemployed.

It is important to stress again that our results depend on the government abandoning the fiscal austerity program that is still demanded by the institutions. Conversely, should the government reduce public employment and pensions even further, real output and unemployment will be much worse than projected.

Figure 15 Greece: Baseline Main Sector Balances, Actual and Projected



Source: Authors' calculations

Table 4 Greece: "Optimistic" Baseline Projections

	2014	2015	2016	2017
Real GDP (% growth rate)	0.70	0.97	2.88	1.43
Government surplus/deficit (% of GDP)	-3.56	-4.67	-2.44	-1.87
Government primary surplus/deficit (% of GDP)	0.35	-0.74	1.48	2.01
Government debt (% of GDP)	182.5	188.6	185.9	183.8
External balance (% of GDP)	3.66	-0.21	2.83	3.82
Exports of goods and services (% of GDP)	32.9	35.3	38.2	39.9
Exports of services (% of GDP)	15.6	18.1	20.9	22.2
Imports of goods and services (% of GDP)	35.3	36.8	36.7	37.3
Employment (millions of jobs)	3.527	3.491	3.563	3.640

Source: Authors' calculations

Scenario 1: The Geuro Proposal

We next simulate our model to estimate the impact of introducing alternative financing instruments, which are compatible with keeping the euro as legal currency. We are, of course, cognizant of the government's rejection of such arrangements, but offer them in light of recent reporting in the popular press that they have been considered by the ECB, the IMF, and even Germany's strongman, Wolfgang Schäuble—all of which have, predictably, denied such claims.

The first option we consider is an update of our proposal, outlined in Papadimitriou, Nikiforos, and Zezza (2014a), of issuing zero-coupon bonds, for which we adopt the label "Geuro" (as proposed in Mayer 2012). Such bonds would bear no interest, and would be both perpetual (no repayment of principal, no redemption, and no increase in debt) and transferable. For all practical purposes, Geuros would be used as money, but the government would not redenominate existing financial assets and liabilities into Geuros, nor would it require private transactions to be settled in Geuros.[12]

Geuros should be convertible in only one direction, from euro to Geuro, to avoid speculative attacks, limit their use to the domestic market, and curb the possibility of transfers to euro deposits outside the country. Informal discussions with ECB officials have made it clear that issuing Geuros would be a fiscal policy decision: it would not interfere with ECB monetary policy, and would therefore be compatible with keeping the euro as legal currency.

Geuros should be issued for two purposes: (1) to restore liquidity in the domestic economy, where euro liquidity is drying up because of the government's need to honor its commitments with foreign creditors, for fear of capital losses and/or extraordinary taxation measures on the part of those who still hold financial assets; and (2) to provide liquidity for additional government expenditure to sustain employment and restore confidence in a recovery of the economy among private investors. The amount of Geuro liquidity to be issued should be very carefully determined to control the risk of inflation and the pressures for immediate depreciation of the Geuro against its nominal value. (The preferred institution charged with the responsibility of issuing Geuros is the Greek central bank or another independent financial authority.) For these reasons, Geuros would be accepted, pari passu, by the government for tax payments, for up to 20 percent of all private sector obligations to the government—that is, for direct and indirect taxes—as well as social contributions.

From the latest data on the nonfinancial accounts of the general government, we observe that, in 2014, the government received €22 billion in "Taxes on products," €16.8 billion in "Taxes on income and wealth," and €24 billion in "Social contributions." Letting taxpayers use Geuros for up to 20 percent of their obligations implies that up to 12.6 billion Geuros could be demanded and used each year only to be paid back to the government.

From the same source, we further observe that, in 2014, the government paid €21 billion in "Compensation of employees" and €33.7 billion as social benefits. In our scenario, we assume that 30 percent of such payments will be made in Geuros, starting in the third quarter of 2015, for the equivalent of €16.4 billion. If this were the only use of Geuros, there would be no impact on the economy, since the smaller payments in euros from the government would be matched by smaller revenues in euros and the Geuros issued would be entirely destroyed, as they would be used as tax payments in the same year. As stated above, the creation of the Geuro is meaningful if and only if it can finance additional expenditure and provide additional liquidity to the nonfinancial sector.

One way to increase liquidity through the issuance of Geuros would be to reimburse the domestic banking sector for its loans outstanding to the government, which totaled €4 billion in short-term loans at the end of 2014 and €6.8 billion in long-term loans (excluding loans from the central bank), for a total of roughly €10.8 billion. Increasing the liquidity of Greek banks, albeit in Geuros, would help increase the circulation of Geuros through borrowing by the nonfinancial sector. This additional emission of Geuros would improve the balance sheet of the financial sector but would not provide the needed stimulus to aggregate demand that Greece needs unless it were reemployed in the form of lending for private sector expenditures, both for consumption and for investment.

We therefore propose, as in Papadimitriou, Nikiforos, and Zezza (2014a), to use Geuro emission to finance a program of direct job creation of the employer-of-last-resort (ELR) type (Table 5). (The general details of such proposals are provided in Antonopoulos et al. 2014.) In summary, the government would provide, for the production of public goods, a job at a minimum wage to anyone willing and able to work. The wage level should be low enough to make private employment more attractive, yet high enough to ensure a decent standard of living.

Assuming, to begin with, a monthly gross wage based on the (post-troika) established monthly minimum of €586 for 550,000 workers implies annual payments of about €7.5 billion, where the annual program cost includes both direct and indirect costs (benefits and social contributions of workers),

Table 5 Greece: Geuro Scenario

	2014	2015	2016	2017
Real GDP (% growth rate)	0.70	3.68	5.93	1.46
Government total surplus/ deficit (% of GDP)	-3.56	-5.95	-4.73	-4.13
Government total primary surplus/deficit (% of GDP)	0.35	-2.11	-0.95	-0.31
Government total debt (% of GDP)	182.5	185.4	180.3	180.5
External balance (% of GDP)	3.66	-0.57	1.31	1.98
Exports of goods and services (% of GDP)	32.9	34.5	36.3	37.9
Exports of services (% of GDP)	15.6	17.7	19.8	21.1
Imports of goods and services (% of GDP)	35.3	36.3	36.2	37.0
Employment (millions of jobs)	3.527	3.690	4.063	4.459
Government surplus/deficit in Geuros (% of GDP)	0	-2.81	-3.5	-3.2
Government surplus/deficit in euros (% of GDP)	-3.56	-3.13	-1.25	-0.88
Government primary surplus/ deficit in euros (% of GDP)	0.35	0.70	2.53	2.94
Government debt in euros (% of GDP)	182.5	182.6	174.1	171.2

Source: Authors' calculations

intermediate consumption of goods and services, and direct and indirect taxes. In this scenario, we assume that the program is gradually implemented, starting in the third quarter of 2015, to create approximately 100,000 additional jobs per quarter for the next two years.

Since the government will be "saving" euros on pensions and wages of existing public sector employees, who will receive 30 percent of their compensation in Geuros, there is no need to finance the ELR program entirely in Geuros. We propose that up to 50 percent of ELR wages would be paid in euros and 50 percent in Geuros, for an additional 7.5 billion euro-equivalent stimulus to the economy per year.

We simulate our proposal on top of the "optimistic" baseline reported in Table 4. According to our model, the stimulus will be effective in restarting the economy, with real GDP growing considerably in 2015 and even more strongly in 2016, then slowing down in 2017, when the need for additional ELR jobs is lessened by the recovery in the private sector and the ELR program is tapered. The government can also choose to finance investment in key sectors that is either export-oriented or aimed at substituting the importation of goods with those domestically produced.

As expected, the stimulus to domestic demand implies a deterioration in the current account balance that is worse than in our "optimistic" baseline, but the expected increase in revenues from tourism is still sufficient to keep the current account in a surplus position.

The sum of government expenditure in both euros and Geuros results in a higher government deficit, as expected. However, with the given choice of the share of expenditure paid in Geuros, and the maximum share of taxes that can be paid in Geuros, we expect a sensible improvement in the government's euro accounts, which tend to balance by the end of the simulation period, while the primary surplus in euros as a share of GDP increases from 2015 onward. As a consequence, government debt outstanding as a share of GDP will start falling quickly.

When first proposed (see Papadimitriou, Nikiforos, and Zezza 2014a), this alternative financing arrangement was attacked as a transitory stage in Greece's ultimate exit from the euro. This, of course, misses the point of the system's restricted parallel nature and the commitment of the government, if it were to be implemented, not to redenominate any assets in Geuros. Furthermore, it would not be a permanent structure, but in place until such time as the Greek economy was growing at sufficient levels, especially in net exports, so as to increase euro inflows and correspondingly decrease the amount of Geuros in circulation, and in turn decrease Geuro tax receipts in favor of euro receipts. Above all, the Geuro program must be well designed and the supply of Geuros very carefully controlled—by an independent agency accountable to the Greek Parliament—to resist inflationary pressures.

Scenario 2: Tax Certificates Proposal

As an alternative to the introduction of a parallel financial system, another proposal has been advanced that is also based on the creation of an alternative financing mechanism: fiscal credit certificates (FCCs). There are several variants of this proposal. We will simulate the variant proposed by Cattaneo and Zibordi for the Italian economy,[13] adapted to the Greek situation.

As proposed, FCCs could initially be transferred electronically to the bank bond accounts of recipients, and could

later also be issued in paper form. The certificates could be used to pay direct, indirect, and property taxes, including social contributions, after a holding period of 24 months for their nominal value (say, €100). It could also be established that, should they be used later than 24 months, the nominal value would increase by a given interest rate.

It is expected that the recipients of FCCs, which would need liquidity in euros to increase their expenditure immediately, would sell FCCs to whoever needed to pay taxes in the future and had liquidity in euros. FCCs would obviously be sold at a predetermined discount against their nominal value, where the discount would tend to zero as they approached maturity.

The main differences between FCCs and the Geuro are: (1) FCCs would not immediately be used as a parallel currency, although nothing would prevent private payments in FCCs, with mutual consent; and (2) Geuros could be used immediately for tax payments, while FCCs could only be used to pay taxes at maturity. The reason for delaying the immediate use of FCCs would be to let the economy grow with the fiscal stimulus for some time, generating larger tax revenues in euros to offset the drop in euro revenues that would arise when the FCCs came to maturity.

Table 6 Greece: Fiscal Credit Certificates Scenario

	2014	2015	2016	2017
Real GDP (% growth rate)	0.70	3.00	6.01	1.75
Government total surplus/ deficit (% of GDP)	-3.56	-5.63	-4.53	-4.03
Government total primary surplus/deficit (% of GDP)	0.35	-1.78	-0.74	-0.21
Government total debt, including FCCs (% of GDP)	182.5	186.2	180.7	180.3
External balance (% of GDP)	3.66	-0.48	1.52	2.12
Exports of goods and services (% of GDP)	32.9	34.7	36.5	38.0
Exports of services (% of GDP)	15.6	17.8	19.9	21.2
Imports of goods and services (% of GDP)	35.3	36.4	36.2	37.0
Employment (millions of jobs)	3.527	3.600	4.023	4.571
Government surplus/deficit in euros (% of GDP)	-3.56	-3.55	-0.60	-2.11
Government primary surplus/ deficit in euros (% of GDP)	0.35	0.30	3.19	1.70
Government debt in euros (% of GDP)	182.5	184.1	174.8	172.6

Source: Authors' calculations

FCCs have been designed with properties that will make them more palatable to the eurozone institutions, as well as to citizens who might be unnerved by the introduction of a parallel financial system—acting as new currency—for its possible implications for inflation and/or the devaluation of existing financial assets.

Since FCCs cannot be used immediately for private sector payments or tax payments, introducing them as part of the compensation of existing public sector employees or for pension payments—as in the Geuro proposal—would amount to a cut in such sources of income, since the recipients would need to sell FCCs at a discount in exchange for liquidity in euros. We therefore assume that FCCs are issued mainly to increase public expenditure, financing 50 percent of the ELR program described above, with the remaining 50 percent funded in euros. This implies FCC emissions of about €1,875 million per quarter, starting in the third quarter of 2015. We assume the euro-equivalent value of this program to be the same as in the Geuro scenario, but that FCCs will be sold at a predetermined discount of, say, 25 percent when the program starts, 10 percent in 2016, and 5 percent in 2017 as their maturity nears.

Results of model simulations for this proposal are reported in Table 6. Again, we keep the same assumptions as in our "optimistic" baseline (Table 4) and add in the FCC stimulus. We expect FCCs to be issued for the whole of the simulation period, and, as stated, those issued in 2015 will be used for tax payments in 2017, thereby reducing euro revenues for the government in that year.

An additional proposal from the Italian proponents of FCCs is that they are transferred to exporting firms, and as this would be equivalent to a reduction in tax payments, the impact on competitiveness should be similar to that of a decrease in labor costs and should therefore help boost exports and improve the current account balance. We believe the proposal to be of interest but preferred not to evaluate it, as its realistic impact on goods exports is difficult to establish for the Greek economy, where such exports are small relative to exports of services.

Can Greece Use a Parallel Currency to Pay Back Existing Government Debt?

The major concern of the Greek government in the past weeks has been how to repay debt as it becomes due, with no access to further external funding.

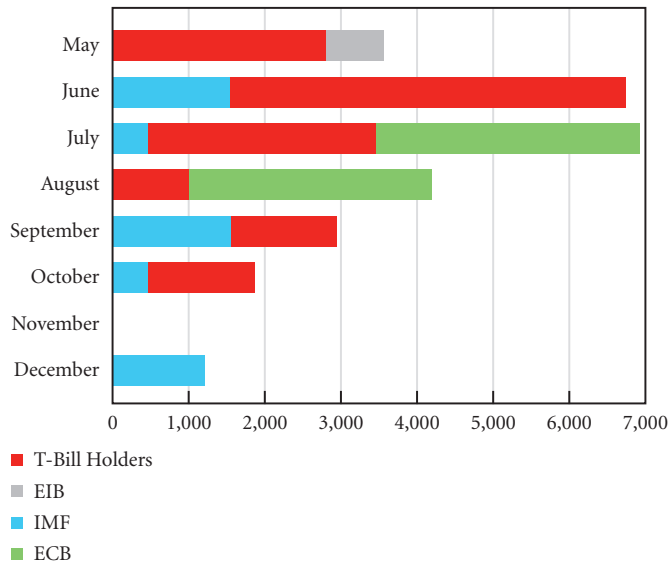
In Figure 16, we report the tranches of government debt coming to maturity in the remaining months of 2015 (€2.153 billion, still in the chart, were repaid to the European Investment bank and to holders of Greek treasury bills in May). More than €25 billion in debt will reach maturity in 2015, and in our estimate of the impact of introducing the Geuro, the immediate improvement in government accounts denominated in euros will not be sufficient for this purpose. Moreover, should the government use additional euro liquidity to extinguish foreign debt, with no access to additional external finance, it is hard to believe that confidence will be restored—the assumed precondition for our scenarios—and that enough liquidity will be available for generating an economic recovery.

Should the government be forced to meet its existing obligations, one possibility would be to introduce an extraordinary tax on deposits, as the Italian government did in 1992, applying a tax of 0.6 percent on average bank balances. This tax was reimbursed to deposit holders when the government liquidity crisis was over.

Using the same percentage, the Greek government would obtain less than €1 billion—not enough to finance debt repayment in 2015. Italy's extraordinary tax was highly unpopular, and applying a similar policy in Greece with a higher tax rate may prove politically unsustainable.

The only alternative to the government defaulting on its forthcoming debt payments lies in refinancing, and—as we have tried to show—under these conditions the government would slowly achieve an overall surplus in euros, which could be used after 2017 to begin repaying its debt. But, more important, the Greek economy would at last see GDP and income growing.

Figure 16 Greece: Debt Payments Due in 2015 (millions of euros)



Source: Financial Times

Conclusions

In this report we have argued that Greece may be on the road to recovery, provided some conditions are met. However, the most important problem, which needs to be addressed immediately, is the state of fundamental uncertainty about the near- and medium-term future. This depends on the outcome of the negotiations between the new SYRIZA government, the IMF, and Greece's eurozone partners. If the institutional members of the Brussels Group are indeed pushing Greece toward defaulting on its debt and keeping to a path of austerity for fiscal policy and the labor market—as De Grauwe (2015) argues—then Greece will experience a further recessionary period, as private investors will remain reluctant to start new businesses in a country where the prospects for profitability are low and very volatile. In addition, households and business are still deleveraging on their existing debt, and the recent surge in tourism-related activities will not, according to our model, be sufficient to jump-start a recovery in 2015.

If, on the other hand, the Greek government gains access to refinancing its existing debt at the existing, very low interest rates, and uncertainty is at least partially lifted, we argue that investment will come back, generating sufficient growth in the second half of 2015 to more than offset the turbulent first months of the new government. In this case, government debt as a percentage of GDP will fall from 2016 onward. In this "optimistic" baseline scenario we assume that the government will meet all of its financial obligations against its creditors.

However, our simulation shows that, without further policies, recovery will be slow, in the face of the humanitarian crisis and the high level of unemployment Greece is currently enduring.

We have therefore discussed two proposals to fund a program of direct job creation; neither proposal requires access to liquidity in euros, and both are compatible with the EU treaties and the current rules regulating monetary authorities. The first proposal, which updates Papadimitriou, Nikiforos, and Zezza (2014a), focuses on the issuance of a nonconvertible parallel currency—the Geuro—that the government would accept, pari passu, in fulfillment of tax obligations. Introducing the Geuro would allow the government to finance much-needed job creation, and by restoring liquidity should help stabilize expectation and foster private investment.

Our model simulation shows that such a program would allow Greece to achieve a higher growth rate more quickly, and create a substantial number of new jobs—albeit at a minimum wage—while the level of debt relative to GDP would fall faster. The government deficit denominated in euros would fall while a deficit in Geuros would arise, but the potential inflationary impact of this additional liquidity would be negligible.

A fiscal impulse may also be provided through the emission of fiscal credit certificates, non-interest-bearing bonds that are accepted for tax payment at maturity, which is assumed to be two years. In this case, FCCs would not be used as currency, but rather sold at a discount to obtain liquidity. Our simulation shows that, again, an expansionary fiscal policy financed through FCC emission would be effective in sustaining growth and job creation, while keeping government accounts in euros in line with the requests of the institutions.

It is important to stress that our model shows that the expected improvement in revenues from tourism would be sufficient to finance the increase in imports arising from an expansion in domestic demand. To strengthen this result, export-oriented policies would also be necessary, to reduce the vulnerability of a country dependent mainly on tourism for balancing its external account.

In this report we have not discussed the possibility of Greece exiting the euro system as a result of failing to achieve a reasonable agreement with Brussels. As discussed in our previous report (Papadimitriou, Nikiforos, and Zezza 2014a), we broadly agree with Rachman (2015): a Grexit would generate further short-term costs for the country, possibly for up to 24 months after exit. It would imply that the government had defaulted on its debt and required new external funding to finance needed imports until a new, devalued currency increased export revenues enough to bring the current account into balance. But, on the other hand, it would restore the ability of the government to pursue policies aimed at the well-being of its citizens rather than its international creditors.

Notes

1. Real GDP, measured as chain-linked volumes with reference year 2010, increased by 0.3, 1.5, and 1.3 percent in the last three quarters of 2014 (ElStat GDP Table 13.1)
2. The sector includes "Wholesale and retail trade; repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities." The seasonally adjusted data in Figure 3 are computed from ElStat GDP Table 10.1.
3. Accessed on April 11, 2015.
4. The sector is defined as "Mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; water supply; sewerage, waste management and remediation activities."
5. A comparison to 2006 is not possible yet, since ElStat has reconstructed GDP series only back to 2007.
6. A precise measure of net lending is controversial. The nonfinancial accounts show net lending—defined as saving less investment—has increased substantially, from a low of 4.5 percent of GDP in 2009 to more than 12 percent of GDP at the end of 2014. The financial accounts published by the Bank of Greece—which measures net lending as the net change in financial assets—report an average *negative* value for the net lending of nonfinancial corporations. From the flows in financial accounts, it emerges that nonfinancial corporations managed to lower their liabilities (other than equities) by about €6 billion between the end of 2011 and the third quarter of 2014, while the market value of their nonequity liabilities dropped from a high of 83 percent of GDP at the end of 2013 to 70 percent of GDP in 2014Q3, but this is mainly due to movement in the market price of the underlying financial assets.

7. Source: ElStat, Annual Non-financial Sector Accounts: Households, Resources.
8. A negative figure for the change in government liabilities held abroad also arises if these securities are sold to a different domestic sector; that is, Greek banks.
9. Households carried an additional €15.8 billion in short-term debt at the end of 2014; nonfinancial firms, an additional €32.5 billion.
10. The data for 2014 refer to the first half of the year.
11. For a good reconstruction of the current situation, see Watt (2015).
12. A similar proposal, for electronic Tax Anticipation Notes, is put forward in Andresen and Parenteau (2015).
13. Cattaneo and Zibordi (2014); in Italian. For details in English, see Cattaneo (2013). See also Pilkington and Mosler (2012) for an earlier proposal for tax-backed bonds.

References

Andresen, T., and R. W. Parenteau. 2015. "A Detailed Program Proposal for Creating a Parallel Currency in Greece." Available at rwer.wordpress.com/2015/03/28/a-detailed-program-proposal-for-creating-a-parallel-currency-in-greece/.

Antonopoulos, R., S. Adam., K. Kim, T. Masterson, and D. B. Papadimitriou. 2014. *Responding to the Unemployment Challenge: A Job Guarantee Proposal for Greece*. Research Project Report. Annandale-on-Hudson, N.Y.: Levy Economics Institute of Bard College. June.

Cattaneo, M. 2013. "Tax Credit Certificates." Available at bastaconleurocrisi.blogspot.it/2013/09/tax-credit-certificates-certificati-di.html.

Cattaneo, M., and G. Zibordi. 2014. *La soluzione per l'euro* (The solution for the euro). Milan: Hoepli.

De Grauwe, P. 2015. "Are Creditors Pushing Greece Deliberately Into Default?" *Social Europe*, April 28. Available at www.socialeurope.eu/2015/04/are-creditors-pushing-greece- deliberately-into-default/.

Mayer, T. 2012. "Der Geuro: Eine Parallelwährung für Griechenland?" (The Geuro: A parallel currency for Greece?). Deutsche Bank Research. Briefing on European Integration, Frankfurt am Main, May 23.

Papadimitriou, D. B., M. Nikiforos, and G. Zezza. 2014a. *Prospects and Policies for the Greek Economy*. Strategic Analysis. Annandale-on-Hudson, N.Y.: Levy Economics Institute of Bard College. February.

———. 2014b. *Will Tourism Save Greece?* Strategic Analysis. Annandale-on-Hudson, N.Y.: Levy Economics Institute of Bard College. August.

Pilkington, P., and W. Mosler. 2012. *Tax-backed Bonds—A National Solution to the European Debt Crisis*. Policy Note 2012/4. Annandale-on-Hudson, N.Y.: Levy Economics Institute of Bard College. March.

Rachman, G. 2015. "Grexit May Be the Best End for a Bad Marriage." *Financial Times*, May 4.

Watt, A. 2015. "The Greek Stand-Off: A Proper Sense of Perspective Is Urgently Needed." *Social Europe*, April 16.

Data Sources

Bank of Greece. www.bankofgreece.gr. Last accessed May 2015.

ElStat (Hellenic Statistical Authority). www.statistic.gr. Last accessed May 2015.

IMF (International Monetary Fund). World Economic Outlook Database. Last accessed April 2015.

OECD (Organisation for Economic Co-Operation and Development). stats.oecd.org. Last accessed April 2014.