



Strategic Analysis

May 2015

Greece: Conditions and Strategies for Economic Recovery

D. B. Papadimitriou, M. Nikiforos, G. Zezza

May 2015

Summary

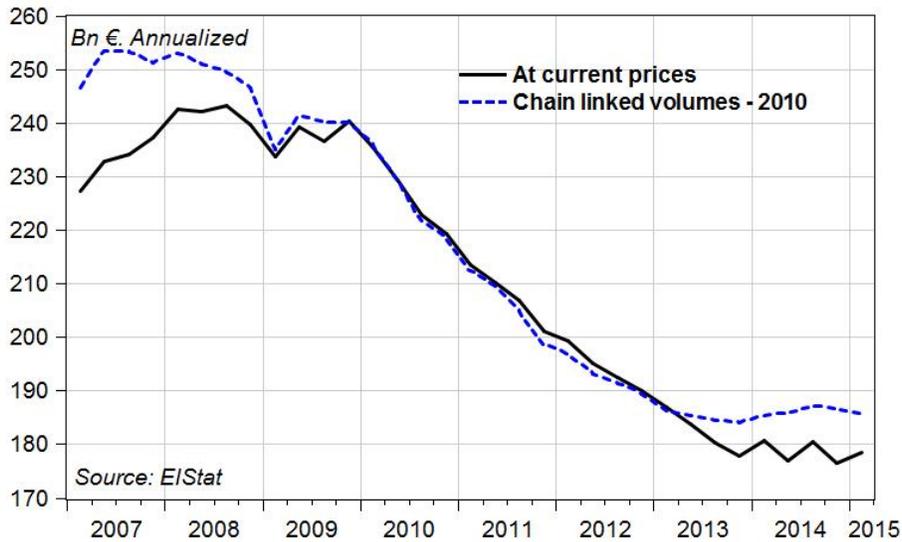
The Greek economy has the possibility of recovering, and in this report we argue that access to alternative financing sources could provide the impetus and liquidity needed to grow and create jobs. The conditions for this to happen are that existing government debt is rolled over, and austerity policies are put aside, restoring trust in the economic future of the country, and creating the conditions for sustainable income growth, which will eventually enable the country to pay back its debt.

On the contrary, we show that failure in achieving an agreement with the Brussels institutions will imply a further decline in output and income.

1. Introduction

The newly elected government has been at the negotiation table with the European elite since taking office 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 their heels in insisting on some non negotiable issues including the level of primary budget surplus (more austerity is needed to achieve it), additional labor market flexibility and restructuring the public pension system. These issues are contrary to pre-election promised “red lines” the government will not cross. What both sides are focusing on is how to craft creative language in an agreement that satisfies both sides by ending austerity but achieving the required fiscal discipline that will enable Greece to service its public debt and making its economy even more competitive. Notwithstanding the economic ruins of the past six years the dogma of expansive austerity lives on. An agreement sooner or later 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 non performing loans is teetering on the edge of collapse. How long will this negotiation process take to come to an agreement is anybody’s guess, even

Figure 1. Greece. GDP

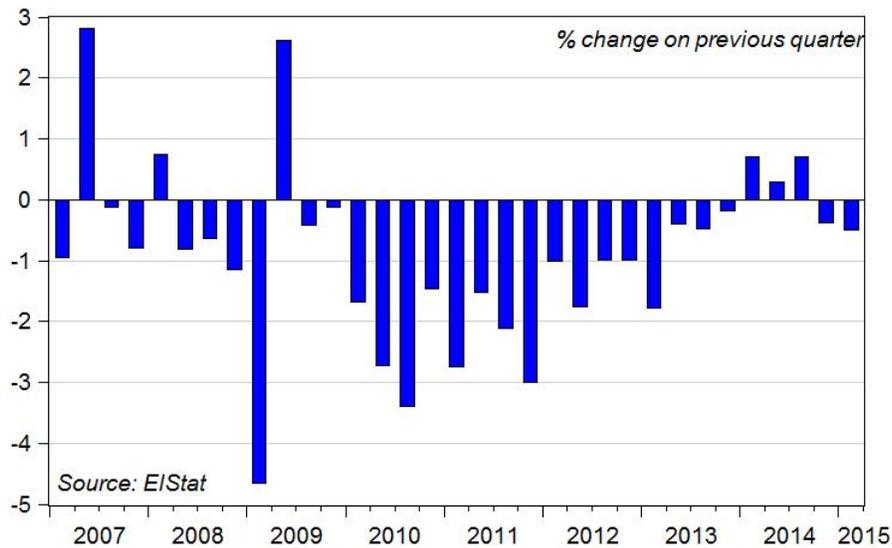


though June 30 has been assumed to be the drop dead date. In the meantime, as we will show, current conditions have not improved as yet, and all bets are on increased tourism activity. The current year, therefore, will most likely end in either a negative or very small increase in GDP. Last year's small 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 the "pessimistic" scenario should the "institutions" (the new name of 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 the third quarter of 2014, 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 which if continues in the second quarter, then, the economy would have slipped back in recession (Figure 1).

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

Figure 2. Greece. Real GDP growth



Can the positive signs of 2014 be sustained and put the economy finally on the road to recovery? Can the new government expect markets to create jobs at sufficient pace, and tax revenues to increase? As we will show, unless an appropriate plan to rescue the Greek economy is quickly implemented, our answer would be negative.

Real and nominal output

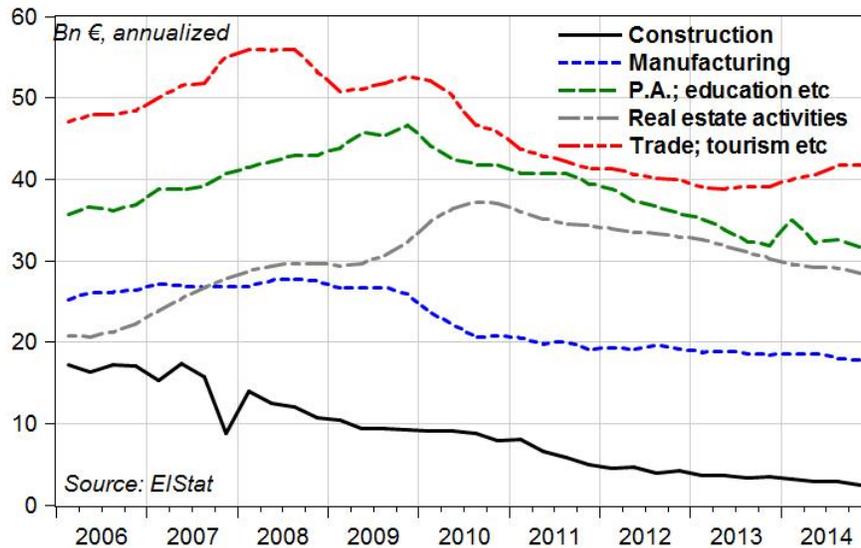
While a recession ends when real GDP increases, it is hard to believe that the Greek economy is indeed recovering, even after three consecutive quarters of increases in output¹. Indeed, as Figure 2 documents, despite some growth in the tourism sector total real output has fallen again both in the last quarter of 2014 and first quarter of 2015.

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 on 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 one in nominal 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 of the main sectors of the Greek

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 (data from EIStat GDP Table 13.1)

Figure 3. Greece. Value added by main sectors



economy. It can be clearly seen that the only recovering sector is the one related to tourism ². From its lowest of 38.8 billion euro in 2013, value added has increased to 41.7 billion euro in the last quarter of 2014. In real terms, value added in this sector has increased by 6 percent in 2014. Other sectors have continued falling, with construction registering the largest drop in real terms in 2014 (a negative 16 percent!), and manufacturing down by 2 percent by the end of 2014.

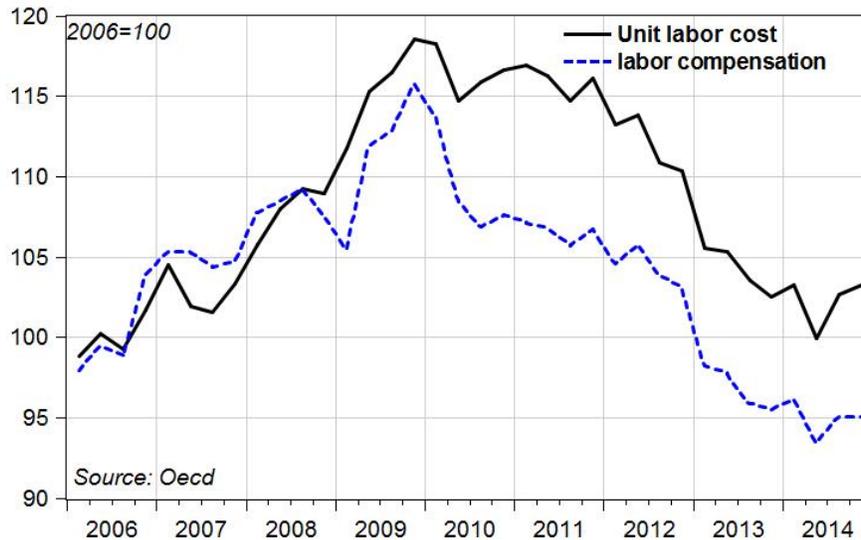
Deflation and competitiveness

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, against the peak in 2010. In Figure 4, we report the OECD measure of unit labor costs and an index of labor compensation. The former is down by almost 20 percent at the end of 2014 relative to its peak in 2010 while the latter is down by 17.8 percent.

These declines are not uniform, and for some sectors labor compensation has decreased even more. In the “Accommodation and food service activities” category, for instance, where tourism-related activities are included, the index of wages in the third quarter of 2014 was 40 percent

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.

Figure 4. Greece. Labor cost indexes



below its 2008 level.

Table 1. Selected Eurozone countries. Average annual wages
(in 2013 euro, and relative to Germany)

	2000		2007		2013	
	€	%	€	%	€	%
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

The fall in wages can also be assessed in relation to other Eurozone countries, and this is shown in Table 1 using data of average annual wages from the OECD database³. The data in Table 1 illustrate that Greece was the country which – starting from the second lowest level of wages in 2000 – had the best performance up to the 2007 crisis marking an increase of 24 percent. Notwithstanding the improvement this had on the living standards, even at their peak wages were only 66 percent of the comparable wages in Germany. They were subsequently completely erased by the crisis pushing the Greek economy relative to Germany back to the pre-euro adoption days.

³ Accessed on April 11, 2015

Figure 5. Greece. Inflation



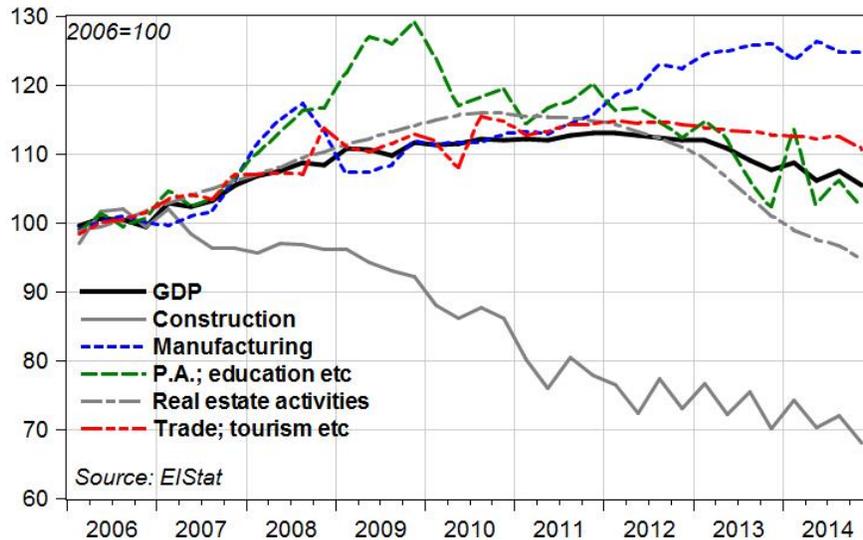
If one of the major problems of the non-competitive nature of the Greek economy were related to high wages as the major determinant of high unit labor costs, it has certainly been “cured” by austerity. The fallacious theory behind this approach implies that a country should, in a relatively short time, restore its competitiveness and enjoy the benefits of lower production costs that would significantly improve its trade performance.

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

The decomposition of price dynamics cast 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 shown in Figure 6, prices have not followed the declining trend of wages and compensation, with the exception of the collapsed construction sector with its real value added

Figure 6. Greece. Price deflators by main sector



down by 76.6 percent in 2014 against its pre-crisis 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 manufacturing⁴ sector has had an increasing trend marking a 24 percent increase in 2014 against 2006.

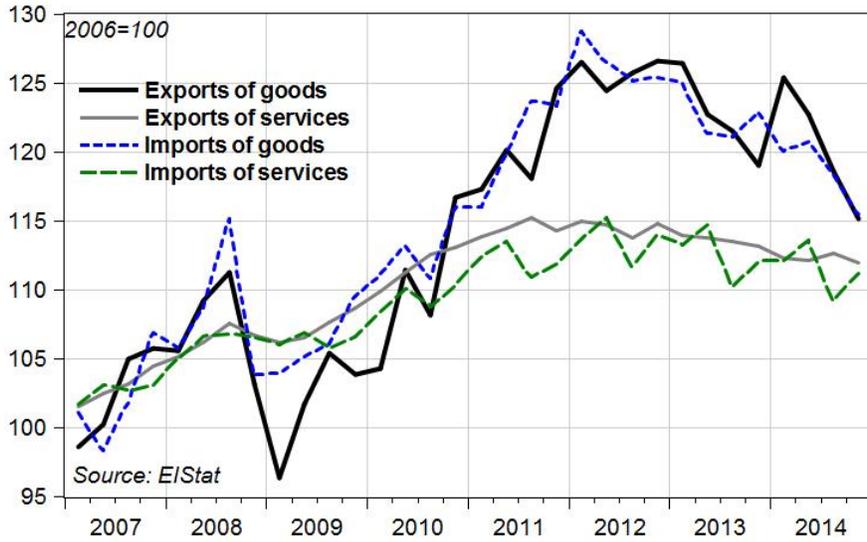
Similarly, in Figure 7 we report the price deflator indexes of the components of trade. Relative to their peak in 2012, the price for exports of goods has fallen by 9 percent, but is still 16.7 percent above its 2007 level⁵. The price deflator index for services peaked in the third quarter of 2011 and 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 that of its partners.

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 EIStat has reconstructed GDP series only back to 2007.

Figure 7. Greece. Price deflators for trade



Exports of services – which include tourism – had the worst price performance until 2012 but their 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

Figure 8. Eurozone countries. Price deflators for exports of goods

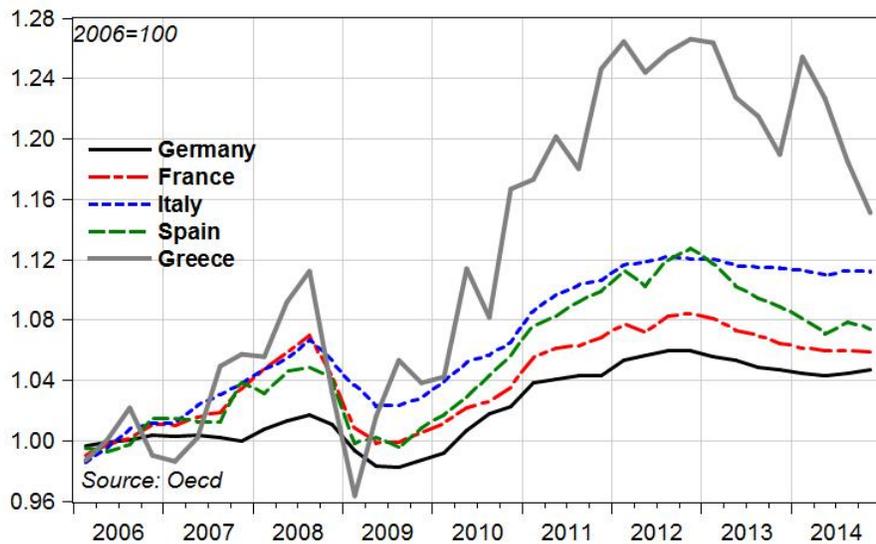
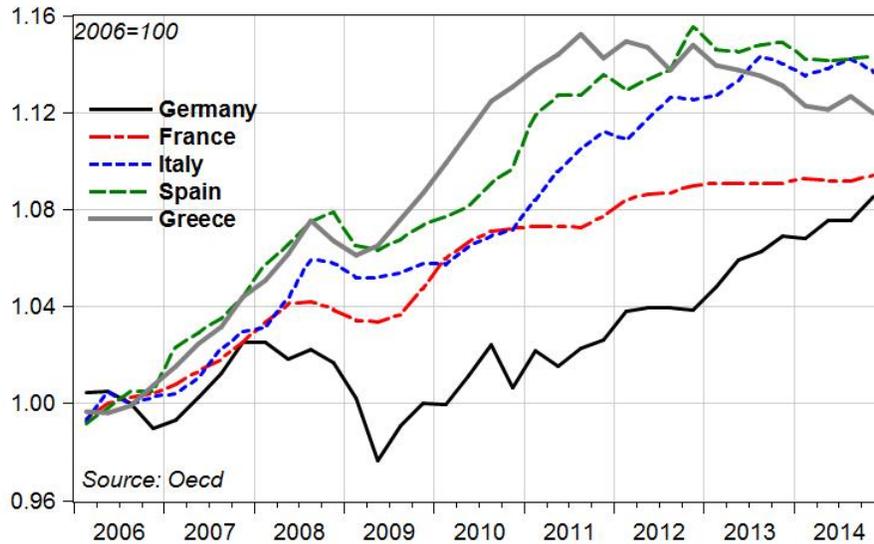


Figure 9. Eurozone countries. Price deflators for exports of services



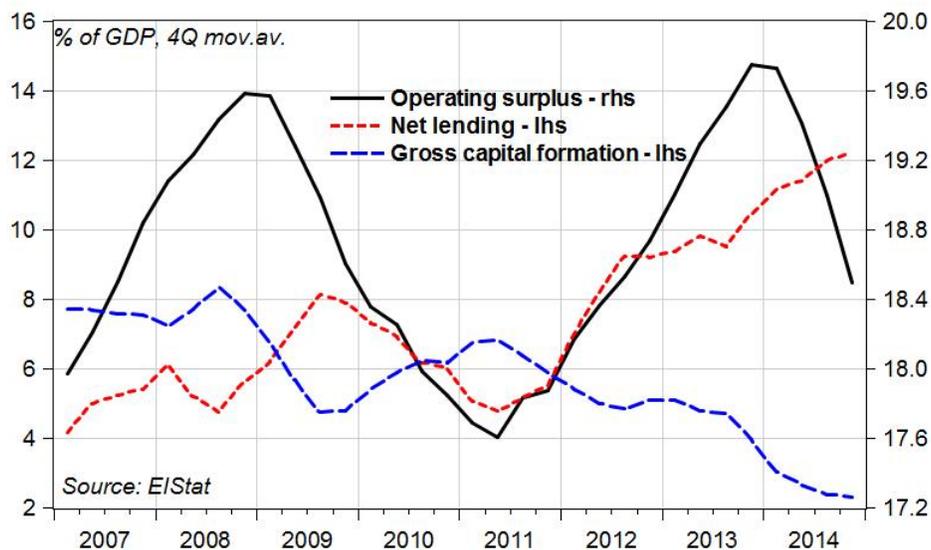
devaluation”, i.e. a reduction in wages and unit labor costs that would increase price competitiveness. Even though this strategy has been very effective in reducing nominal and real wages, as documented above in Figure 4 and Table 1, it has, thus far, failed to generate a fall in prices that would sufficiently 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 from the last quarter of 2013.

Recent dynamics in exports and imports seem to confirm what we 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 (increase in activities related to oil products) and/or changing trading partners (increased trade to non-eurozone countries). The increase in tourism is partly explained by the instability in countries, like Egypt, Turkey and the wider Middle East region, which are direct competitors to Greece of tourist preferences.

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

When wages fall faster than prices profitability should be increasing. In Figure 10, we report two measures: the gross operating surplus of non-financial corporations, and their net lending,

Figure 10. Greece. Profits and investment in non-financial corporations



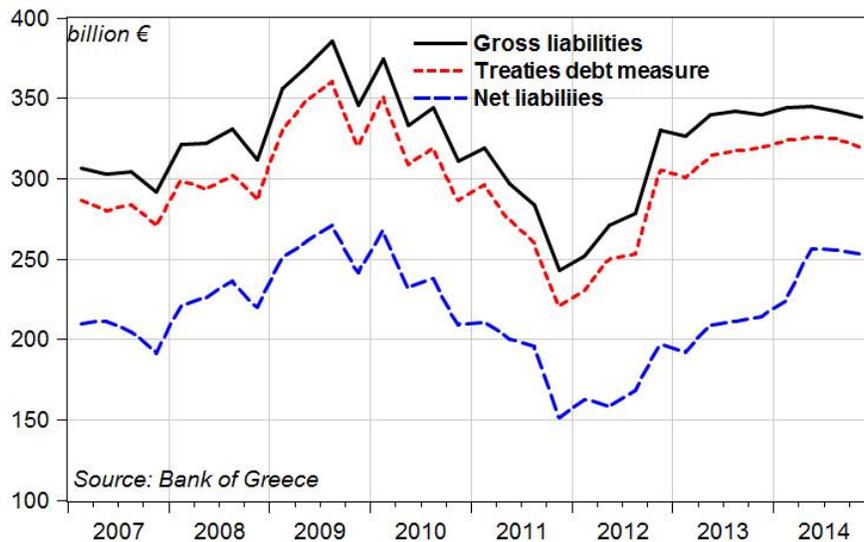
relative to GDP. Gross operating surplus had recovered to its pre-crisis level by the end of 2013, but fell again in 2014, likely because of increased taxation. The increase in firms' operating surplus has not translated into higher investment, which instead keeps falling. Firms may have used retained profits for deleveraging, as it is shown by the strong increase in net lending in Figure 10⁶. Again, if the purpose of internal devaluation was to increase profitability in order for investment to recover, the strategy has succeeded only to sustain profits on the face of falling output and sales, and only up to 2013, without any consequence on investment as shown by the precipitous decline in gross capital formation.

Our final word on the internal devaluation and deflation is that the largest contributor to the fall in prices is the construction and the real estate activities sectors (Figure 6) that caused rental income in 2013 to be down by 27 percent, compared to 2006⁷. Deflation in Greece is, therefore,

⁶ A precise measure of net lending is controversial. Net lending from the non-financial accounts— given by saving less investment – has increased substantially from a low of 4.5 percent of GDP in 2009 to over 12 percent of GDP at the end of 2014. The same concept, as measured in the financial accounts published by the Bank of Greece, and given by the net change in financial assets, report an average negative value for the net lending of non-financial corporations. From the flows in financial accounts, it emerges that non-financial corporations managed to bring down their liabilities (other than equities) by about 6 billion euro between the end of 2011 and the third quarter of 2014, while the market value of their non-equity liabilities dropped from a high of 83 percent of GDP at the end of 2013 to 70 percent of GDP, but this is mainly due to movement in the market prices of the underlying financial assets.

⁷ Source: EIStat, Annual non-financial national accounts by sector, Households, Resources

Figure 11. Greece. government debt



taking the form of a free fall in wages, while prices do not as rapidly follow suit, generating a substantial fall in real income causing the collapse in domestic demand.

2. 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 pre-crisis 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 post-haircut austerity period? The data from the non-financial accounts of the government show a cumulated net government borrowing of 45.7 billion euro over the 2012-2014 period, the largest part of which of 34 billion euro, is made up of capital transfers, mainly to the banking sector. If we take out net capital transfers paid, the cumulated deficit of the government over the same period is 26.7 billion euro, while interest payments amounted to 24 billion euro. In other words, *the increase in government debt over this period is due almost entirely to payments to the financial sector.*

How have the Greek governments used the international loans? They obviously helped finance the overall deficit, but a reconstruction of how international loans changed the net asset

position of the government, 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 the Hellenic Statistical Authority (ElStat), we have the following:

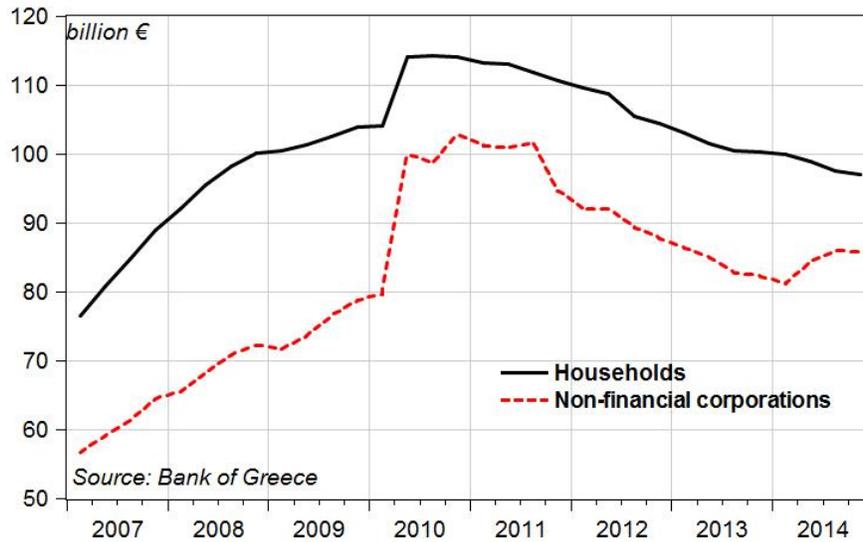
Table 2. Greece. International loans and government payments (billion euro)							
		2010	2011	2012	2013	2014	Sum
<i>Sources of funds</i>							
1	Long-term loans from abroad	24.3	30.0	110.0	30.8	5.6	200.8
<i>Uses of funds</i>							
2	Net decrease in securities held abroad	19.9	24.4	44.3	8.0	7.8	104.5
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 largest part of these funds went to reducing 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 have been negative from 2010 onwards. A negative change in liabilities is equivalent to purchasing back the existing stock of debt, although the same result is obtained when the domestic private sector refinances these securities when they come due. Another large part 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 expenditure of the government 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

Figure 12. Greece. Long-term loans outstanding



with mortgages, non-financial firms with loans) who have experienced a severe drop in their 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 amounts of long-term loans⁸ outstanding for both households and nonfinancial corporations. It is feared that up to 50 percent of this debt – which sums to 176 billion euro – 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 et.al. 2014b), we had pointed out that the Non-Performing Loans (NPL) of the Greek banks is one of the biggest problem of the Greek economy and the major symptoms of the debt-deflation trap the Greek economy finds itself today.

Data from the Greek and the European Central Bank were showing a staggering increase of the 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 European Central Bank on the gross total doubtful and non-performing loans as a percentage of the total debt instruments, total loans and advances are shown in Figure 13⁹.

⁸ Short term loans outstanding were an additional 15.8 billion euro for household at the end of 2014, and 32.5 billion euro for non-financial firms.

⁹ The data for 2014 refer to the first half of the year.

Figure 13. Greece. Non-performing loans

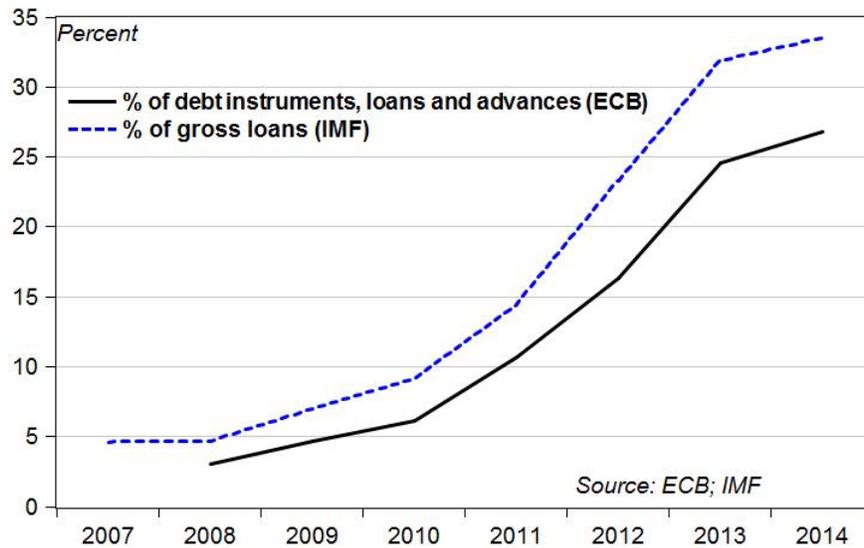


Figure 13 indicates that the NPLs increased from 3% in 2008, to 27% in the first half of 2014.

In absolute terms this means an increase in Gross total doubtful and non-performing loans from 9.7bn euros in 2008 to 78bn euros in the second half of 2014.

Figure 13 also includes data from the Global Financial Stability Report of the IMF that cover the period 2007- 2014. The picture that emerges is similar to that of the ECB estimate: the NPLs as a percentage of the total loans continued to increase during 2014, albeit at a slower pace.

Meanwhile, fear of potential bank losses is generating a dramatic fall in household deposits in Greek banks as reported in Figure 14, which – albeit still high at 118 billion euro in March 2015 – have dropped by more than 16 billion in the first three months of 2015.

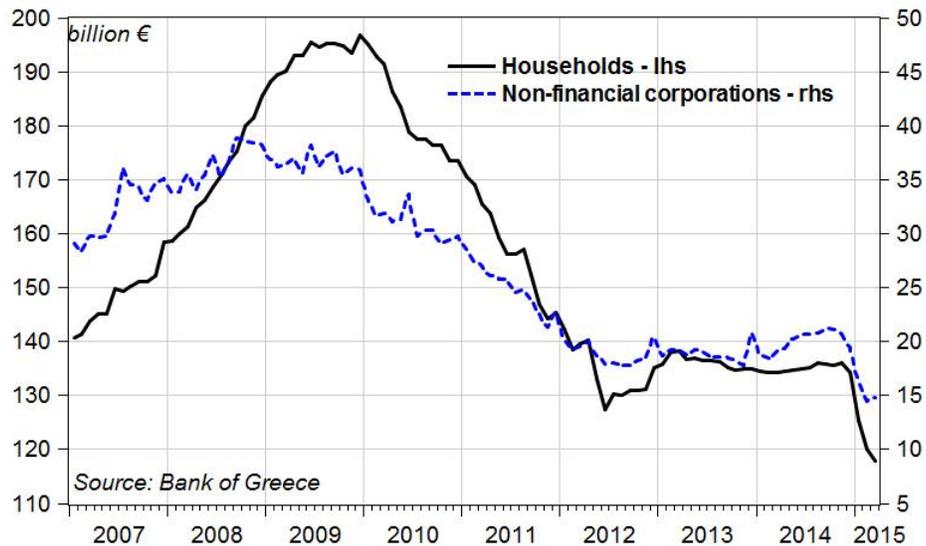
3. Will Greece recover?

Projections on possible paths of an economy 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 failure to achieve an agreement quickly between the new government and the “Brussels institutions” has put the economy in a state of *fundamental uncertainty*¹⁰.

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

¹⁰ For a good reconstruction of the current situation see Watt (2015) among others

Figure 14. Greece. Non-financial sector deposits outstanding

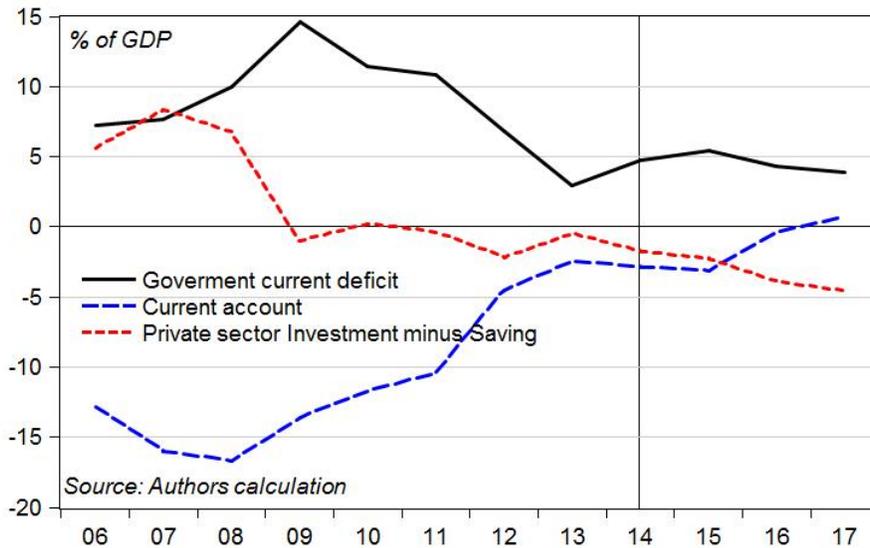


and/or fear of redenomination of euro financial assets into a new national currency, led to households withdrawing more than 16 billion euro – more than 12 percent – from their bank deposits in the first three months of 2015. Unconfirmed reports show that deposit withdrawals have reached 30 billion euro by the end of April 2015.

Almost all of Greek public debt is held by the IMF, the ECB and Eurozone partners through the European Stability Mechanism (ESM) that are unwilling to roll-over maturing debt as it becomes due. The last repayments in April and May to the IMF maturing debt and interest due forced the government to drain liquidity wherever it was available, with rumors of liquidity shortage for meeting ordinary government expenses. There are also rumors of lower than anticipated tax revenues since January 2015, which contribute to the shortage of liquidity. And, more possibly and even more importantly, the ECB is warning of a deeper haircut of government debt used as collateral for providing liquidity from its Emergency Liquidity Assistance (ELA) facility.

If no agreement is reached and the *Brussels institutions* insist on debt repayment, it will be inevitable for Greece to default within the Eurozone or possibly exit the Eurozone. This outcome would be a consequence of irrational behavior on the part of the Brussels institutions, 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 MOUs, implementing further fiscal austerity. Since Greece has achieved a

Figure 15. Greece. Baseline: main sector balances



primary surplus, albeit small, and even (some of the) Brussels 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 cause further damage to the already strained and 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, which does not require further fiscal austerity, while the tranches of existing debt coming to maturity are refinanced at interest rates prevailing in ECB operations, and interest rate payments are duly honored.

To obtain our baseline, we follow our usual strategy, which takes “neutral” assumptions on the exogenous determinants of our stock-flow consistent macroeconomic model. Growth in income and prices for the Greek trading partners is obtained from the IMF WEO 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; inflation is projected to be negative until the end of 2015, and zero afterwards. The prices of equities and housing 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 quarter and last quarter of 2014, increases in 2015 to its 2013 level, and remains stable thereafter.

Under this assumption, our model projects a further fall 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.

	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
Export 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 (million)	3.527	3.467	3.471	3.527

The fall in real output in 2015 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 non-financial sector is still deleveraging, and expected to continue doing so in our projections. As a consequence of the fall in output, the small primary surplus reached in 2014 in government accounts is eroded. We are assuming that capital transfers to the government, which were about 4 billion euro in 2014, and about 6 billion euro in 2013, revert to a smaller amount, closer to the pre-crisis average, partially explaining the projected increase in government deficit, and the fall in primary surplus as shown in Table 3. In Figure 15 we depict the projected paths of the three financial balances; 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 2016 onwards.

We project the current account (without net capital transfers) to remain roughly stable in 2015, and to increase from 2016 onwards, mainly due to increases in exports of services. Again, we assume that capital transfers from abroad, which were almost 12 billion euro in 2014, revert to their average pre-crisis level, and this explains the deterioration of 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 non-financial 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, most likely 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 stops receiving additional external finance and is unable to pursue expansionary policies, it will suffer another year or more of recession, and will be slowly pulled out of the crisis by the tourism sector.

4. More optimism?

Our baseline projection in Table 3 may turn out to be too pessimistic, if a good agreement with the Brussels institutions is indeed reached, the projections of an increase in tourism by 10 percent over 2014 materialize, and restored confidence among business people stimulate 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, we assume that additional investment takes place for about 1 billion euro 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 in 2016 and onwards.

	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
Export 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 (million)	3.527	3.491	3.563	3.640

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 grow also 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 many, however, given the current numbers of the unemployed.

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

5. Scenario 1. The Geuro proposal

We next simulate our model to estimate the impact of the introduction of 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 as having been considered by the ECB, the IMF and even Germany's strong man, Wolfgang Schäuble. All, of course, have denied such claim.

The first option we consider is an update of our proposal in Papadimitriou et al. (2014a), of issuing zero-coupon bonds, for which we adopt the label "Geuro" proposed in Mayer (2012). Such bonds would bear no interest, be perpetual (no repayment of principal, no redemption, and no increase in debt), and transferable. For all practical purposes, Geuro would be used as money, but the government would not redenominate existing financial assets and liabilities into Geuro, nor would require private transactions to be settled in Geuro¹¹.

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

Geuro should be issued for two purposes: (1) to restore liquidity in the domestic economy, where euro liquidity is drying up because of the need for the government 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

¹¹ A similar proposal has been put forward by Andresen and Parenteau (2015), as electronic Tax Anticipation Notes.

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 Geuro against its nominal value. (The preferred institution charged with the responsibility of issuing Geuro is the Greek central bank or another independent financial authority.) For these reasons, Geuro will be accepted *pari passu* by the government for tax payments, for up to 20 percent of all private sector obligations to the government, i.e. for direct and indirect taxes, as well as social contributions.

From the latest table on the non-financial account of the general government, we observe that, in 2014, the government received 22 billion euro on “Taxes on products”, 16.8 billion euro on “Taxes on income and wealth”, and 24 billion euro on “Social contributions”. Letting taxpayers use Geuro of up to 20 percent of their obligations implies that up to 12.6 billion Geuro 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 euro in “Compensation of employees”, and 33.7 billion euro as social benefits. In our scenario, we assume that 30 percent of such payments will be made in Geuro, starting in the third quarter of 2015, for the equivalent of 16.4 billion euro. If this were the only use of Geuro, there would be no impact on the economy, since the smaller payments in euro from the government will be matched with smaller revenues in euro, and the emission of Geuro being entirely destroyed as they are used in tax payments in the same year. As stated above, the creation of Geuro is meaningful, if and only if, it can finance additional expenditure, and provide additional liquidity to the non-financial sector.

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

We therefore propose, as in Papadimitriou et al. (2014a), to use Geuro emission to finance a program of direct job creation of the ELR type. The general details of such proposals are detailed in Antonopoulos et al. (2014). In summary, the government would provide a job at a minimum wage

for the production of public goods to anyone able and willing 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 euro for 550,000 workers implies annual payments of about 7.5 billion euro, where the annual program cost includes direct and indirect costs (benefits and social contributions of workers), 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” euro on pensions and wages of existing public sector employees, who will receive 30 percent of their compensation in Geuro, there is no need to finance the ELR program entirely in Geuro. We propose that up to 50 percent of ELR wages are paid in Euro, and 50 percent in Geuro, for an additional total stimulus to the economy of about 7.5 billion euro-equivalent per year.

	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
Export 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 (million)	3.527	3.690	4.063	4.459
Government surplus/deficit in Geuro (% of GDP)	0	-2.81	-3.5	-3.2
Government surplus/deficit in Euro (% of GDP)	-3.56	-3.13	-1.25	-0.88
Government primary surplus/deficit in Euro (% of GDP)	0.35	0.70	2.53	2.94
Government debt in euro (% of GDP)	182.5	182.6	174.1	171.2

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, slowing down in 2017 when the ELR program will begin tapering, and the need for additional ELR jobs is lessened by the recovery in the

private sector. The government can also choose to finance investment in key sectors either export-oriented or aiming at substituting the importation of goods with those domestically produced.

As expected, the stimulus to domestic demand implies a deterioration of the current account balance, which 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 Euro and Geuro results in government deficit to increase as expected. However, with the given choice of the share of expenditure paid in Geuro, and the maximum share of taxes that can be paid in Geuro, we expect a sensible improvement in the Euro accounts of the government, which tend to balance by the end of the simulation period, while the primary surplus in Euro as a share of GDP increases from 2015. As a consequence, government debt outstanding will start falling quickly, as a share of GDP.

This alternative financing arrangement when it was first proposed (Papadimitriou, et. al. 2014) was attacked as a transitory stage mechanism to ultimately exit 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 into Geuro. Furthermore, it will not be a permanent structure, but in place until such time as the Greek economy grows at sufficient levels, especially in net exports so as to increase the euro inflows and correspondingly decrease the Geuro amounts in circulation and in its turn decrease the Geuro tax receipts in favor of euro receipts. Above all the Geuro program must be well designed, and its supply of Geuro very carefully controlled –to push back inflationary pressures—by an independent agency accountable to the Greek Parliament.

6. Scenario 2. Tax certificates proposal

Another proposal that has been advanced, as an alternative to the introduction of a parallel financial system, is based again on the creation of an alternative financing mechanism, this time based on Fiscal Credit Certificates (FCCs). There are different variants of this proposal, possibly starting with Pilkington and Mosler (2012). We will simulate the variant proposed by Cattaneo and Zibordi for the Italian economy¹², adapted to the Greek situation.

The FCCs can initially be transferred electronically to banks’ bond accounts of the recipients, and could later be also issued in paper form. They can be used to pay direct, indirect and

¹² See Cattaneo – Zibordi, “La soluzione per l’euro”, Hoepli, 2013. For some details in English, see Cattaneo (2013)

property taxes, including social contributions, after a holding period of 24 months for their nominal value (say, 100 euro). It can also be established that, should they be used later than 24 months, the nominal value is increased by a given interest rate.

It is expected that the recipients of FCCs, which need liquidity in euro to increase their expenditure immediately, will sell FCCs to whomever needs to pay taxes in the future, and has liquidity in euro. FCCs will obviously be sold at a predetermined discount against their nominal value, where the discount will tend to zero as they come close to maturity.

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

FCCs have been designed with properties that will make them more palatable to the Eurozone institutions, as well as to citizens who may be scared of the introduction of a parallel financial system –acting as new currency—for its possible implications on inflation and/or 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 euro. We, therefore, assume that FCCs are issued mainly to increase public expenditure, financing 50 percent of the ELR program described above – while the remaining 50 percent is paid in euro. This implies emissions of FCCs for about 1875 million euro per quarter, starting from the third quarter of 2015. We are assuming the value in euro equivalent of this program to be the same as in the Geuro scenario, but that FCCs are sold at a predetermined discount of, say, 25 percent when the program starts, and at a smaller discount of 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 of our optimistic baseline in Table 4, and add in the FCCs 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.

	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
Export 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 (million)	3.527	3.600	4.023	4.571
Government surplus/deficit in euro (% of GDP)	-3.56	-3.55	-0.60	-2.11
Government primary surplus/deficit in Euro (% of GDP)	0.35	0.30	3.19	1.70
Government debt in euro (% of GDP)	182.5	184.1	174.8	172.6

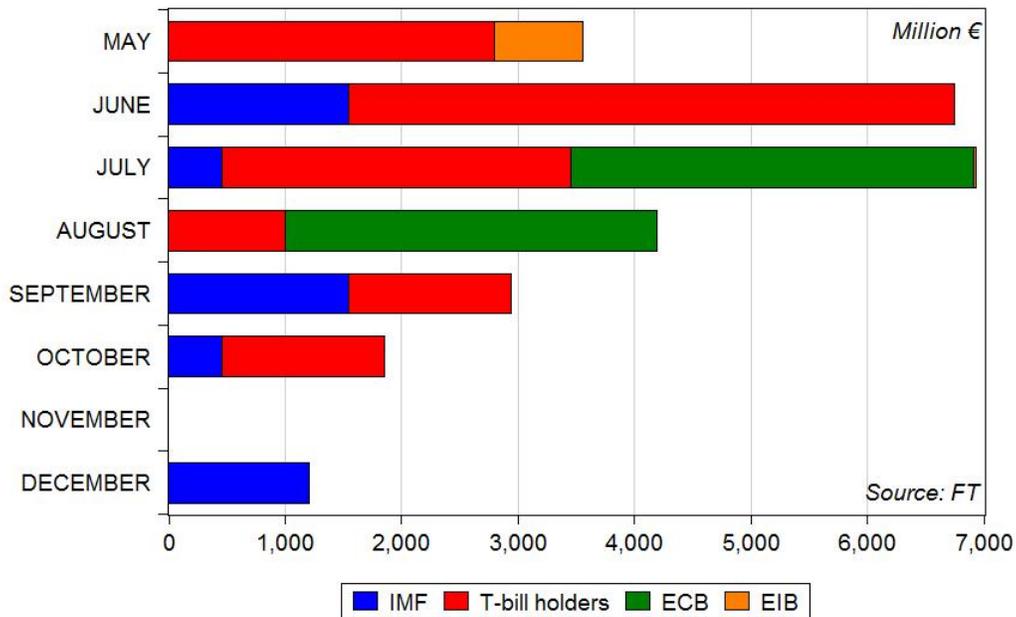
An additional proposal from the Italian proponents of FCCs is that they are transferred to exporting firms, and as this would be equivalent to a reduction in tax payments, the impact on competitiveness should be similar to that of a decrease in labor costs, and therefore should help boost exports and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

7. 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 on how to pay back 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 euro, still in the chart, have already been paid back to the European Investment bank and to T-bill holders in May). More than 25 billion euro are coming to maturity in 2015, and in our estimate of the impact of the introduction of the Geuro, the immediate improvement in government accounts in euro will not be large enough for this purpose. Moreover, should the government use additional liquidity in euro to extinguish foreign debt, with no access to additional external finance, it is hard to believe that confidence will be restored – as we are assuming as the precondition for our scenarios – and that enough liquidity will be available for generating an economic recovery.

Figure 16. Greece. Debt payments in 2015



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 the average bank balances. This tax was reimbursed to deposit holders when the liquidity crisis of the government was over.

Using the same percentage, the Greek government would obtain less than 1 billion euro: not enough to finance debt repayment in 2015. The Italian 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 avoid defaulting on the forthcoming debt payments is in refinancing, and – as we have tried to show – under these conditions the government will slowly achieve an overall surplus in euro, which can be used after 2017 to begin paying back its debt, but more importantly the Greek economy will see, at last, GDP and income growing.

8. Conclusions

In this report we have argued that Greece may be on the road to recovery, provided that some conditions are met. The most important problem, however, which needs to be addressed immediately, is the state of fundamental uncertainty on the near and medium term future. This

depends on the outcome of the negotiations between the new SYRIZA government, the IMF and the Eurozone institutions. If the *Brussels institutions*, which so far have represented the interests of the creditors, are indeed pushing Greece towards defaulting on its debt, and keeping an austerity path for fiscal policy and the labor market – as De Grauwe (2015) argues – then Greece will experience a further recessionary period, as private investors will still be reluctant to start new businesses in a country where prospects of 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 start a recovery in 2015.

If, on the other hand, the Greek government gains access to refinancing the existing debt coming to maturity 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 will start falling – as a percent of GDP – from 2016 onwards. 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 recovery will be slow without further policies, on 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, which do not require access to liquidity in euro, and are compatible both with the current rules regulating monetary authorities, and with the EU Treaties. The first proposal, which updates Papadimitriou et al. (2014a), focuses on the emission of a non-convertible parallel currency, the Geuro, that the government is issuing, and that it will accept *pari passu* in fulfillment of tax obligations. Emission of Geuro allows the government to finance much-needed creation of jobs, and by restoring liquidity it should help stabilize expectation and foster private investment.

Our model simulation shows that such a program will 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 will fall faster. Government deficit in euro will fall, while a deficit in Geuro will arise, but the potential inflationary impact of this additional liquidity would be negligible.

A fiscal impulse may also be given 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 sold at a discount to obtain liquidity by the recipients. Our simulation shows that, again, an expansionary fiscal policy financed through

FCCs emission would be effective in sustaining growth and job creation, while keeping government accounts in euro in line with the requests of the Brussels institutions.

It is important to stress that our model shows that the expected improvement in revenues from tourism will 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 depending 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 in failing to achieve a reasonable agreement with the Brussels institutions. As discussed in our previous report in Papadimitriou et al. (2014a), we broadly agree with Rachman (2015): a Grexit will generate further short-term costs to the country, possibly for up to 24 months after exit. It will imply that the government defaults on its debt, and will require new external funds to finance needed imports up to when a devalued new currency has increased export revenues enough to bring the current account to balance. But, on the other hand, it will restore the ability of the government to pursue policies aimed at the well-being of its citizens, rather than of its international creditors.

References

- Andresen, T. and Parenteau, R.W. (2015) 'A detailed program proposal for creating a parallel currency in Greece', available at <https://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
- Cattaneo, M. (2013) 'Tax Credit Certificates', available at <http://bastaconleurocrisi.blogspot.it/2013/09/tax-credit-certificates-certificati-di.html>
- De Grauwe, P. (2015) 'Are Creditors Pushing Greece Deliberately Into Default?', Social Europe, April 28, available at <http://www.socialeurope.eu/2015/04/are-creditors-pushing-greece-deliberately-into-default/>
- Mayer, T. (2012) "Der Geuro: Eine Parallelwahrung fur Griechenland?" (The Geuro: A parallel currency for Greece?). Research Briefing. Frankfurt am Main: Deutsche Bank. May 23.
- Papadimitriou, D.B., Nikiforos, M. and Zezza, G. (2014a) 'Prospects and policies for the Greek economy', Levy Institute Strategic Analysis, February
- Papadimitriou, D.B., Nikiforos, M. and Zezza, G. (2014b) 'Will Tourism Save Greece?', Levy Institute Strategic Analysis, August
- Pilkington, P. and Mosler, W. (2012) 'Tax-backed bonds – A national solution to the European debt crisis', Levy Institute Policy Note, 2012/4
- Rachman, G. (2015) 'Grexit may be the best end for a bad marriage', Financial Times, May 4.

Watt (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 World Economic Outlook, last accessed April 2015

Oecd statistical warehouse, stats.oecd.org, last accessed April 2014