

## AN EVALUATION OF POLICIES FOR FISCAL AND EXTERNAL SUSTAINABILITY DURING THE RECENT GREEK ECONOMIC CRISIS\*

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**Abstract:** *The scope of this note is to point out that high growth rates must be accompanied by current account surpluses financing the internal debt service as a necessary and sufficient condition for a debt-reduction strategy. The recipe is applied in the case of Greece which, looking back at the pre-crisis period, has been experiencing substantial consumption-led growth following extensive foreign borrowing.*

Key Words: Twin Deficits, Debt, Sustainability

JEL Classification: F32, H63.

### 1. Introduction

This note does not aspire to add to the evaluation of the economic policy recipes followed since 2009 as these have been implemented by means of the measures taken following the Memorandum signed between the Greek government and the Troika (IMF/ECB/EC). Its scope is much more straightforward: It simply aims at considering the extent to which the performance of the Greek economy as this is expressed by the figures attained or forecasted thus far can be considered to compromise between fiscal and external sustainability in terms of coping with the

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so-called twin-deficit complications. The issue has recently assumed particular importance following the final performance assessment of the Greek economy and the termination of the so-called Memorandum period with all economic and political implications that such a prospect may entail.

The approach we shall follow is the following: After a brief overview of the picture concerning the position of the Greek economy as it stands now after a six-year recession, we shall embark on an exercise to assess the extent to which both the actual and the forecasted figures reflecting its macroeconomic performance in key sectors may be considered as being compatible with observing the fiscal and external constraint. Assessing the feasibility and realism of these policies shall be the main concern of the next section with the results drawn and the policy recommendations derived occupying the concluding sections of the paper.

## **2. In Terms of a Literature Review**

Given that the focus of this note confines itself to the study and evaluation of a specific policy issue we have opted to deal with the part of the literature that refers chiefly to policy considerations while just touching upon a small number of key contributions concerning fundamental concepts like e. g. sustainability. What we do, in fact, is deal with the question regarding the extent to which the external sector imposes a constraint on fiscal policy and in particular the public debt sustainability. By deviating from the well known debt sustainability equation – whereby the sustainability of the public debt is constrained by fiscal variables and the exogenously given interest payment and growth rate – we point out that the sustainability of the public debt is also affected by the external sector performance. We shall demonstrate, in fact, that the importance of the external sector role can be underlined by extending the well known public debt sustainability equation,

formalized by Blanchard et al. (1990), to incorporate certain national account identities related to the external sector.

The need to enrich the Blanchard equation has arisen following the co-existence of the twin-deficits disease in Greece with a substantial high public debt level and high GDP growth rates. This inevitably challenges the traditional public-debt-sustainability analysis and the argument that, achieving high growth rates will effectively guarantee a diminishing path in the public debt level. It seems, therefore, that the attainment of high GDP growth rates is a necessary but not sufficient condition for a diminishing public debt path which is considerably affected by external sector developments. Regarding the latter, therefore, the determination of a “sustainable current account threshold” becomes a necessity. This, however, in its turn seems to require a definition of a sustainable current account deficit like the one provided by Holman (2001)<sup>3</sup> or Bussière et al. (2004) who determine a long-run structural current account position after all cyclical effects have died out.

Getting back to the applied side of the issue, the traditional current account deficits of Greece have soared following the country’s Eurozone membership, reaching an

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<sup>3</sup> A sustainable current account deficit “changes in an orderly fashion through market forces without causing jarring movements in other economic variables, such as the exchange rate”. In such cases current account deficit changes do not affect capital flows and consequently macro variables like consumption, investment, interest or exchange rates. This explains the tendency traced in the literature to examine the long-run relationship between the current account and its fundamental macroeconomic determinants (e.g. see Debelle and Faruquee, 1996; Blanchard and Giavazzi, 2002; Chinn and Prasad, 2003; Bussière *et al.* 2004). Finally, there are papers which suggest a generally accepted figure determining the current account deficit sustainability threshold (e.g. Freund, 2005 claims that it amounts to about 5% of GDP).

average of 11.2 percent of GDP since 1999 culminating to reach 15.6% in 2008, partly due to fiscal policy effects as well as to competitiveness deterioration (twin-deficit hypothesis)<sup>4</sup>.

Despite the chronic balance of payments problems facing the Greek economy, the issue of its current account deficit sustainability has been brought forward only during the last decade through papers like Pantazides (1999) and Apergis et al. (2000) who agree that the pressure exercised on the burden of the current account deficit and the resulting debt accumulation are not enough to cause serious disturbances on the basic macroeconomic variables of the country's economy and that such a deficit is therefore sustainable. Nearly a decade later, Zombanakis et al (2009) use neural network methodology applied, however, to non-oil data, to reach the same conclusion, contrary to Brissimis et al (2010) who find serious indications of unsustainability<sup>5</sup>. Finally there is extensive research on the subject currently

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<sup>4</sup> A variety of exogenous influences has added to the current account burden and has contributed to further increasing concerns as regards sustainability: (i) the payments for purchases of ships, which reflected the increased demand for sea transport services, connected to trade with markets like China and India; (ii) the dramatic increases of the international crude oil prices in a context of low price elasticity of demand and heavy energy dependence of the Greek economy in an environment of high growth rates. Finally, there have been radical changes concerning the compilation of external sector statistics (the exclusion of capital transfers from the current account, the recording of interest payments on an accrual rather than on a cash basis).

<sup>5</sup> The IMF (2007) tends to agree more or less with this view, using, however, a variety of methodologies on the subject, namely the Macroeconomic Balance, the Equilibrium Real Exchange Rate and the External Sustainability Approach. It is not clear, however, whether the so-called competitiveness deficit thus quantified is defined as just price and cost

going on by Bardakas (2015) which shows that the current account deficit of Greece during the last fifteen years is to its largest extent explained by structural factors rather than cyclical ones with the latter gaining some extra explanatory power only during the past two years.

The sustainability issue on both its fiscal as well as its external side appears to be a major concern of the so-called Troika. Thus the IMF (2013) points out that “External debt should decline gradually as a result of projected improvements in the current account balance and continued reliance on official financing at low interest rates”. The interesting part to note, however, with regard to the external sustainability question is that “import compression has resulted in a further shrinking of the current account deficit”, while “the contribution of the external sector disappointed as exports weakened, reflecting soft global demand”. It argues, moreover that “risks to external debt sustainability include delayed structural reforms that slow competitiveness improvements, slippages in the privatization program, and larger than expected deflation”. The EC (2014A), in its turn, forecasts that “the debt sustainability analysis points to a slight deterioration in the debt-to-GDP ratio by the end of the decade”, after having attained its peak value in 2014 at 177.2%, “as clearance of arrears is completed while nominal GDP growth stabilizes, and is then expected to steadily decline in 2015 and beyond on the back of stronger fiscal balances and the economic recovery” (EC - 2014B).

### 3. The Model

Turning first to the fiscal side, the public sector debt can be shown to equal<sup>6</sup>

$$B_{t+1} = (1+r) \cdot B_t + D_t \quad (1)$$

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competitiveness, or, instead, as also including non-price components like technology, quality, brand name and market knowledge.

<sup>6</sup> See for example Chalk and Hemming (2000).

Where  $B$  represents the stock of public debt,  $D$  stands for the primary balance and  $r$  is the effective interest rate, while  $t$  is the time indicator throughout this note.

Considering, next, the external sector, the balance of goods and services in domestic currency terms ( $TB$ ), following the IMF definition provided by IMF 1993 and later modified as described in IMF 2009 is taken to equal

$$TB_t = (S_t - I_t) - D_t \quad (2)$$

where  $I$ : Private investment,  $S$ : Private savings and  $D$ : Primary balance. To complete the picture we shall require introducing a net foreign liabilities equation as follows (Schmitt-Grohe & Uribe, 2014)

$$F_{t+1} = (1 + r_{t+1}^*) F_t - TB_t \quad (3)$$

With  $F$  standing for net foreign liabilities<sup>7</sup> as these are reflected in the International Investment Position (IIP) of the economy and  $r^*$  denoting foreign interest rate.

The question we shall attempt to tackle next is the extent to which debt sustainability can stand as a sufficient condition for debt servicing under plausible assumptions for the external sector and the macroeconomic environment as these are outlined by equations (1) to (3) above.

Combining (1) to (3) yields:

$$F_t (1 + r_{t+1}^*) - F_{t+1} = (S_t - I_t) + [B_t (1 + r) - B_{t+1}] \quad (4)$$

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<sup>7</sup> Net Foreign Liabilities to GDP are considered as a significant predictor of crisis, Catão and Milesi-Ferretti (2013), Tressel et al (2014).

from which by replacing  $(S_t - I_t)$  with the current account balance and dividing by GDP after the appropriate rearrangements we obtain the debt accumulation equation according to which the developments in the external sector of the economy – as these are reflected in the current account balance as well as the net foreign liabilities - are also affecting the dynamic path of debt as follows:

$$b_{t+1} = \frac{cab_t}{(1+n_{t+1})} + \frac{1+r}{1+n_{t+1}} \cdot b_t - \frac{1+r_{t+1}^*}{1+n_{t+1}} \cdot f_t + f_{t+1} \quad (5)$$

or

$$\Delta b = \frac{cab_t}{(1+n_{t+1})} + \frac{r-n_{t+1}}{1+n_{t+1}} \cdot b_t + f_{t+1} - \frac{1+r_{t+1}^*}{1+n_{t+1}} \cdot f_t \quad (6)$$

Where  $b$  = debt-to-GDP ratio,  $f$  = Net foreign liabilities / GDP,  $cab$  = current account balance / GDP and  $r^*$  = average foreign nominal interest rate.

Considering the debt-to-GDP ratio constraint over time ( $\Delta b = 0$ ), it implies:

$$\frac{r-n_{t+1}}{1+n_{t+1}} \cdot b_t = \frac{1+r_{t+1}^*}{1+n_{t+1}} \cdot f_t - f_{t+1} - \frac{cab_t}{1+n_{t+1}} \quad (7)$$

Recalling equation (5) it is obvious that increases in the interest rate affect positively the path of the public debt since:

$$\frac{\partial b_{t+1}}{\partial r_{t+1}} = \frac{b_t}{1+n_{t+1}} > 0 \quad (8)$$

Likewise, increases in the net foreign liabilities are directly related to public debt increases since:

$$\frac{\partial b_{t+1}}{\partial f_{t+1}} = 1 > 0 \quad (9)$$

What remains to be considered is the extent to which increases in the growth rate of the economy can contribute to reducing the debt-to-GDP ratio. Attempting to answer this question on the basis of (5) we obtain:

$$\frac{\partial b_{t+1}}{\partial n_{t+1}} \begin{cases} > 0 \Rightarrow cab_t < R^* f_t - R \cdot b_t \\ < 0 \Rightarrow cab_t > R^* f_t - R \cdot b_t \end{cases} \quad (10)$$

Where:

$$R^* = (1 + r^*), \quad R = (1 + r)$$

Inequality (10) suggests that the recipe for debt reduction is slightly more complicated than what meets the eye. It provides, in fact, that reducing the public debt to GDP ratio is a rather demanding task requiring more than just a high growth rate. In fact, a reduction-of-debt recipe demands that the current account surplus could finance the domestic debt service, as this is depicted by the difference between the total public debt service and that of the corresponding foreign liabilities, the latter being a potential deterrent to capital inflows and, consequently to prospects for investment and growth (Tressel et al. 2014).

One may, therefore, safely argue that the higher the current account surplus and the lower the domestic debt service requirements the more effective is the contribution of growth to the public debt reduction effort.

The reasoning of this recipe is rather straightforward: A rising domestic debt, meaning that the government borrows in the domestic market, leads to crowding out investment from private sources (Ali Abbas and Christensen - 2007). In the case of



Greece, in particular, in which the access of firms to private funds in a crisis environment is limited private lending is expected to be crowded out. Once the funds available for private lending have been reduced, then the corresponding capital cost will rise. The ensuing absence of FDI will bring about adverse repercussions on export - promotion as well as on import - substitution policies thus burdening the country's current account. In such a case, the detrimental effect on growth will be reinforced by the fact that the heavy interest burden of the domestic debt will deprive the government from devoting resources to growth – promoting policies.

#### **4. An Application to the Greek Case**

Greece has been enjoying considerable growth rates reaching as high as about 4% during the pre – crisis period thanks almost exclusively to consumption, following extensive foreign borrowing. Such tactics, leading to the twin-deficits problem marked the way to the country's effective bankruptcy! Given the nature of this problem facing the Greek economy, one can easily see the need to evaluate our debt - reduction recipe considering the sustainability of both the fiscal and the external sector sides the results of which have already become evident at the end of the period under consideration (see Diagramme 1).

Regarding the former, it appears that the situation is well under control given that the IMF baseline projections refer to “contingent relief measures to bring the total public debt figure down to 128 percent in 2020” (IMF 2014). In the case of the external sector the situation may be slightly more complicated. A glance at the IMF external sector debt sustainability analysis (IMF 2014) indicates that things are looking up depending, however, heavily on the projected current account improvement “as competitiveness is restored and Greece continues to rely on official loans at relatively low interest rates. The agreed reduction in the GLF

interest rate and EFSF fees, and the return of SMP profits will also contribute to the sharp improvement in the current account. FDI inflows related to privatization also remain an important non-debt-creating source of financing” (IMF 2014). This position, however, seems to contradict the findings published by the same source (IMF, 2013), according to which “the underlying external position remains relatively unfavorable, with the structural current account deficit estimated at about 6 percent of GDP in 2012, implying an overvaluation in the CPI-based REER of about 10 percent” This conclusion agrees with recent research on the topic (Bardakas 2015) which points to the fact that the current account surplus attained thus far is to a large extent a crisis by-product given the drop of the domestic demand. This finding becomes particularly pronounced following the PSI in 2012 and the ensuing surplus attained in 2013, a period during which the cyclical component assumes generous surplus values.

It appears, therefore, on the basis of (10), that the efforts of the Greek policy makers must focus on holding on to a current account surplus (or at least to a minimal current account deficit) together with a domestic debt service minimization. A closer look at this two-sided condition points to the following considerations:

Aiming at a current account surplus (or, alternatively, at a minimal current account deficit) demands that the goods and services export earnings exceed the goods and services import bill (or, alternatively, that the excess of the goods and services import bill over the goods and services export earnings has been minimised). Nevertheless, the focus on the goods and services balance excludes the incomes and transfers accounts. The fact remains, however, that, allowing for the drop of the import bill due to the demand decline, the bulk of the current account improvement during the crisis has come as a result of both these balances, thanks to the “haircut” following the PSI in the case of the former and the ANFA and SMP funds in the

case of the latter. Thus while the impact on the economy in all these cases has been introduced in (10) via “ $f$ ”, excluding it from the “*cab*” allows us to focus on the external trade itself and the associated structural problems mainly reflected in the performance of the goods exports which leaves a lot to be desired given a number of reasons which are beyond the scope of this paper to analyze. It is important to mention, however, that Greek exports are measured in terms of total value rather than just value added something that overestimates their contribution and underlines the seriousness of the problem (Böwer et al. (2014). It is therefore safe to argue that a closer look at the domestic production index as well as to that of the orders from abroad can lead to a safe export performance forecast. This is a point that applied chiefly in the case of goods, as exports of services are affected by more or less exogenously determined variables.

This inevitably brings us to the IIP reflected in the liabilities side ( $f$ ). The traditional current account deficits of the Greek economy have always been financed during the pre-crisis period by means of portfolio investment, mainly sales of government bonds. Since the start of the crisis period, however, the focus has shifted dramatically to the “other investment” items which include mainly the generous installments of the Troika support, borrowing, that is, with disproportionately low interest rates. As the economy moves to recovery, however, the shift must, once again move, this time to the direction of the direct investment flows (FDI).

Such a move presupposes the full implementation of the required structural reforms as pointed out in Bank of Greece (2014), IMF(2013), Böwer et al. (2014), accompanied by a number of easier interventions like lifting the export-firms liquidity constraint. Once these have been completed, they are expected to trigger the following reaction: Safe long-term investment horizon following the required structural reforms leads to structural competitiveness improvement and FDI flows

from both domestic (creditless) and foreign sources. This leads in its turn to both export promotion and import substitution with substantial benefits for the economy and the foreign sector in particular. In fact, the IMF (2013) suggests that “with improvements in competitiveness and a stronger contribution from exports, the headline current account deficit is projected to improve to about 1 percent of GDP this year and the structural deficit to about 5½ percent”. By contrast, as long as the current-account surplus target is pursued via domestic demand decline rather than via structural reforms the problem will persist in terms of a structural deficit of the order of about 5% to 6% according to recent calculations ( IMF 2013)<sup>8</sup>.

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<sup>8</sup> The high adjustment cost reflects in important part the delayed, hesitant and piecemeal implementation of structural reforms (see Greece: Ex Post Evaluation of Exceptional Access under the 2010 Stand-By Arrangement and 2013 Article IV Consultation). Amidst recurrent domestic political crises, vested interests opposed to reforms have been increasingly emboldened. Thus, reforms have fallen well short of the critical mass needed to transform the investment climate. In fact, as indicated by the IMF (2013), “Structural reforms are progressing slowly....., while the privatization program is behind schedule..... Progress in liberalizing regulated professions has been slower than targeted, particularly in issuing secondary legislation for a number of professions, reflecting resistance from vested interests.....On judicial reforms, the implementation of the anti-corruption plan and the preparation of a draft Code of Civil Procedure have been delayed”. The corruption problem has assumed tremendous dimensions in terms of economic costs (about 7% per year). An excellent study on the problem is found in Azariades et al. (2010).

Position of Diagramme 1: The Fiscal and External Sustainability Problem of Greece  
in Figures

## **5. Conclusions**

This note has shown that a high growth rate may be necessary, but not sufficient in terms of a debt-reduction recipe. We have shown, in fact, that reducing the public debt-to-GDP ratio demands that the current account surplus exceeds the internal debt service, as this is depicted by the difference between the total public debt service and that of the foreign liabilities. The rule may be certainly applicable to other Eurozone country cases as well, but one cannot help pointing out that the Greek economy, more than any other, has suffered a painful experience during the pre-crisis period when it ignored this recipe. As a consequence the generous rates of growth attained almost exclusively thanks to consumption following extensive credit expansion and foreign borrowing led to the twin deficits disease.

Focusing on the condition, its first leg requires that the goods and services export earnings exceed the goods and services import bill (or, alternatively, that the goods and services export earnings growth is higher than the growth rate of the goods and services import bill). Turning to its second leg, this requires reducing the internal debt service in which case attention is inevitably drawn to the possibility of attracting FDI flows from abroad together with boosting up the Public Investment Programmes targeted to infrastructure works (IMF, 2014). Following the IMF, “the onus remains on delivering rapidly on structural reforms to unlock growth and create jobs, which would lessen the pain of further adjustment” (IMF 2013).

What remains to be seen, therefore, is the extent to which the policy makers shall decide on lessening the pain of further adjustment despite the vested interests opposed to the reforms required.

## References

Ali Abbas S. M. and J. E. Christensen (2007) "The Role of Domestic Debt Markets in Economic Growth: An Empirical Investigation for Low-income Countries and Emerging Markets", IMF Working Paper WP/07/127.

Apergis N. K, P. Katrakilidis & N. M. Tabakis (2000), "Current Account Deficit Sustainability: The Case of Greece", Applied Economics Letters Volume 7, Issue 9. p. p. 599-603.

Azariades C. Ioannides Y, Pissarides C. (2010) "Development is the Only Solution. Seventeen Proposals for a New Development Strategy",  
<http://greekeconomistsforreform.com/public-finance>

Bank of Greece (2014), Monetary Policy Report, June. Athens.

Bardakas (2015) "Structural and Cyclical Factors of Greece's Current Account Balance: A Note", Working Paper, Bank of Greece, (Forthcoming).

Blanchard O, Chouraqui J. C, Hagemann R, Sartor N. (1990), "The Sustainability of Fiscal Policy: New Answers to an Old Question", OECD Economic Studies, Nr. 15.

Blanchard O. and Giavazzi F. (2002), "Current Account Deficits in the Euro Area: The End of the Feldstein-Horioka Puzzle?" Brookings Papers on Economic Activity 2, p. p. 147-209.

Böwer U, Vasiliki Michou, Christoph Ungerer (2014), "The Puzzle of the Missing Greek Exports", Economic and Financial Affairs Economic Papers 518, European Commission.

Brissimis S, Hondroyannis G, Papazoglou C, Tsaveas N, Vasardani M. (2010) “Current Account Determinants and External Sustainability in Periods of Structural Change”, Bank of Greece Working Paper 117.

Bussière M, Marcel Fratzscher Gernot J. Müller (2004), “Current Account Dynamics in OECD and EU Acceding Countries - An Intertemporal Approach”, ECB Working Paper No. 311

Catão L. A. V. and Milesi-Ferretti G. M. (2013), “External Liabilities and Crises” IMF Working paper WP/13/113

Chalk N. and Hemming R. (2000), “Assessing Fiscal Sustainability in Theory and Practice” IMF Working Paper WP/00/81.

Chinn M. D. and E. S. Prasad (2003) “Medium-Term Determinants of Current Accounts in Industrial and Developing Countries: An Empirical Exploration” Journal of International Economics 59 (2003) 47–76

Debelle G. and H. Faruquee (1996) “What Determines the Current Account? A Cross-Sectional and Panel Approach” IMF Working Paper, 96/58, pp. 1-42,

EC (2014A) “The Economic Adjustment Programme of Greece, 4th Review.

EC (2014B) “European Economic Forecasts”,  
[Greeceec.europa.eu/.../forecasts/2014.../el\\_en.pdf](http://greeceec.europa.eu/.../forecasts/2014.../el_en.pdf)

Freund C. (2005) "Current Account Adjustment in Industrial Countries" Journal of International Money and Finance, Volume 24, Issue 8, December 2005, p. p. 1278 – 1298.

Holman J. A. (2001), "Is the large US Current Account Deficit Sustainable?" Federal Reserve Bank of Kansas City Economic Review, First Quarter.

IMF (1993) Balance of Payments Manual 5<sup>TH</sup> Edition

IMF (2007) Greece, Selected Issues, Chapter I: "Greece's Competitiveness Deficit: How Big is it and How Could it Be Unwound?"

IMF (2009) Balance of Payments Manual 6<sup>TH</sup> Edition

IMF (2013), "Greece: Fourth Review Under the Extended Arrangement Under the Extended Fund Facility and Request for Waivers of Applicability and Modification of Performance Criterion—Staff Report"; Staff Statement; Press Release; and Statement by the Executive Director for Greece", Country Report No. 13/241, July 2013.

IMF (2014) "Greece: Fifth Review under the Extended Arrangement Under the Extended Fund Facility and Request for Waiver of Nonobservance of Performance Criterion and Rephrasing of Access"; Staff Report; Press Release and Statement by the Executive Director for Greece , IMF Country Report No. 14/151

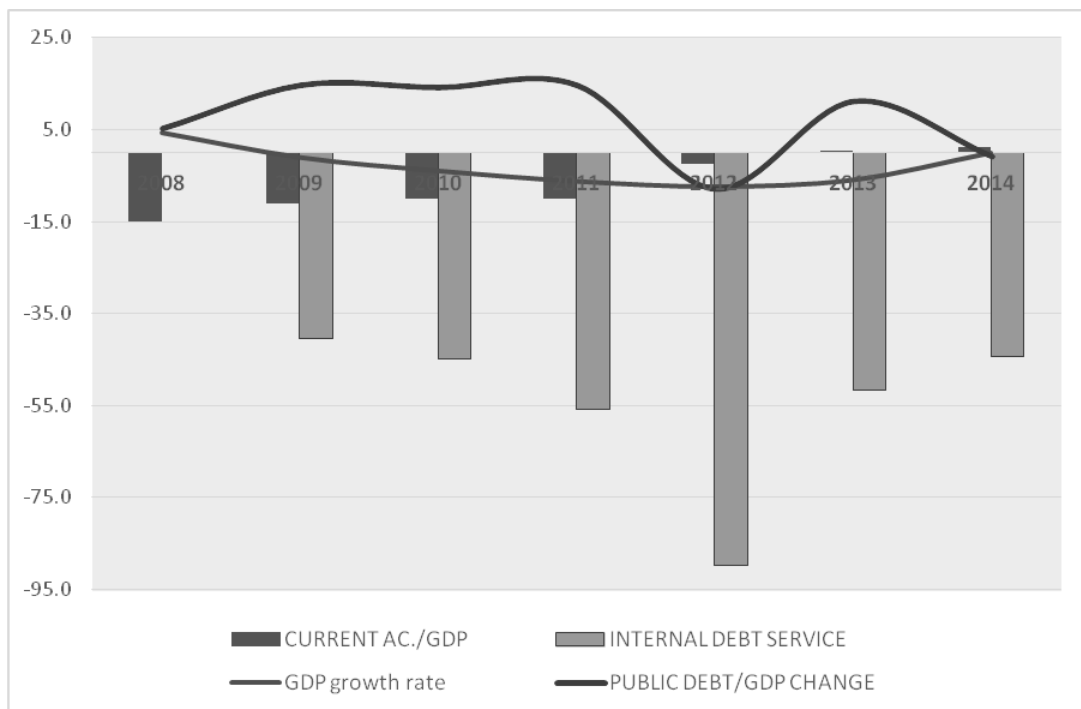
Tressel, T Shengzu Wang, Joong Shik Kang, and Jay Shambaugh, (2014), "Adjustment in Euro Area Deficit Countries: Progress, Challenges and Policies", IMF Staff Discussion Note 14/07 (Washington: International Monetary Fund).



Pantazides S. (1999), "The Sustainability of the Greek Balance of Payments", Economic Bulletin, Bank of Greece.

Zombanakis, G. A, C. Stylianou, and A. S. Andreou (2009), "The Greek Current Account Deficit: Is it Sustainable After All?" Bank of Greece, Working Paper 98.

Diagramme 1: The Fiscal and External Sustainability Problem of Greece in Figures



Source: National Accounts and Bank of Greece