

The Greek public debt before the crisis

Michel Husson, March 2015

This text is the (not always idiomatic) English translation of two recent contributions on the Greek public debt before the crisis¹:

- I. Why a 100% debt-to-GDP before the crisis?
- II. Greek debt: four 'leak variables'

I. Greece. Why a 100% debt-to-GDP before the crisis?

In 2007, Greece's public debt was 103% of GDP (gross domestic product). This high level explains at least partly why Greece has been particularly affected by the crisis. This is why we deal with the period before the outbreak of the crisis (1988-2007). The public debt having this characteristic to transmit itself from one year to another, much of the current debt is the heir of past developments. This brief document seeks to quantify this 'legacy'. Following the method used in France by the Collective for a citizens' audit of public debt, it leads to the following result:

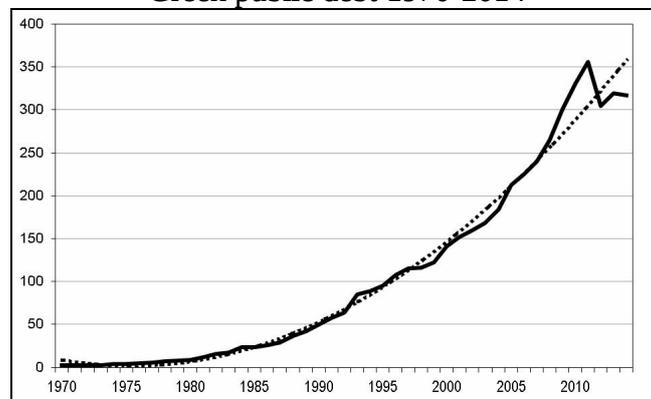
Half of the Greek debt acquired before the crisis can be imputed to extravagant interest rates (between 1988 and 2000) and to a decline in government revenue from 2000 to the crisis. Without these slippages, it would have represented only 49% of GDP in 2007.

We can therefore consider that half of the Greek debt in 2007 was illegitimate because it was based on a drain on the wealth by the domestic or foreign creditors, and to the extent that the decline in government revenue has been beneficial essentially to the oligarchy or to the firms, without any return for the majority of the Greek people.

A brief history of the Greek debt (1988-2007)

Greek public debt rose from 2.2 billion euros in 1970 to 317.2 in 2014². It was multiplied by 21 in constant prices, and its growth seems to be exponential (Chart 1).

Chart 1
Greek public debt 1970-2014



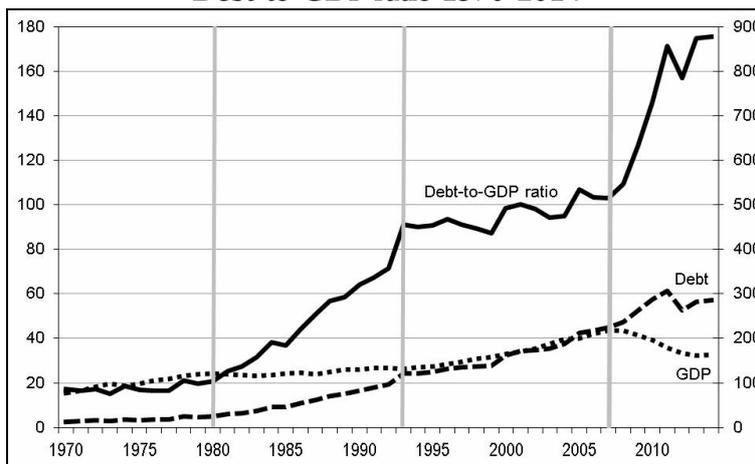
¹ “Dette grecque : quatre variables de fuite”, note *hussonet* n°86, 11 March 2015, <http://hussonet.free.fr/grdette2.pdf>; “Grèce: pourquoi une dette à 100% du PIB avant la crise ?”, *A l'encontre*, 11 February 2015, <http://goo.gl/oJXxga>

² All the data come from the Ameco database established by the European Commission, <http://goo.gl/H3iQNn>)

However, this is an optical illusion. If we look more precisely at the debt-to-GDP ratio, we can observe four distinct phases (Chart 2):

- 1970-1980: low level and slow increase from 17.1% to 20.8%
- 1980-1993: strong increase from 20.8% to 91.2%
- 1993-2007: quasi-stabilization, from 91.2% to 103.1%
- 2007-2014: sharp increase from 103.1% to 175.4%

Chart 2
Debt-to-GDP ratio 1970-2014



Debt-to-GDP ratio: public debt, %GDP (left scale)
Debt and GDP: billion 2005 euros (right scale)

The components of the Greek debt

When the crisis broke, Greek debt was around 100% of GDP, while this ratio was around 20% in 1980. The question to be clarified is why the debt has increased by almost 80 percentage points of GDP, mainly between 1980 and 1993. Each year, the increase in public debt can be decomposed in two terms:

- interest payments
- primary deficit (excluding interests) adjusted for the "stock-flow adjustment"

During this period, most of the increase in debt is clearly related to interest payments (Chart 3).

Chart 3
The components of increase in debt

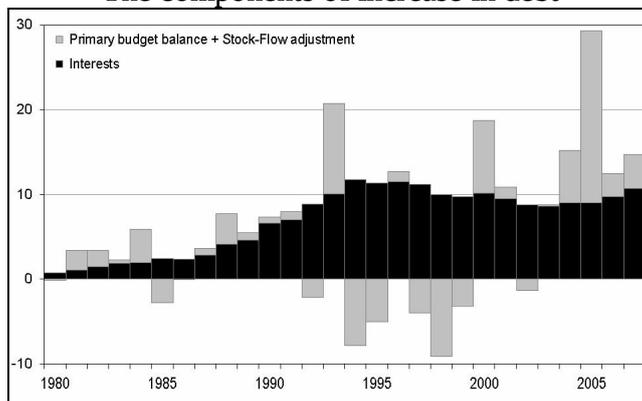


Table 1 below summarizes the contribution of different factors to the change in the debt-to-GDP ratio between 1980 and 1993. Interest payments contribute for 57% to the change in debt, and this proportion reaches 65% between 1988 and 1993.

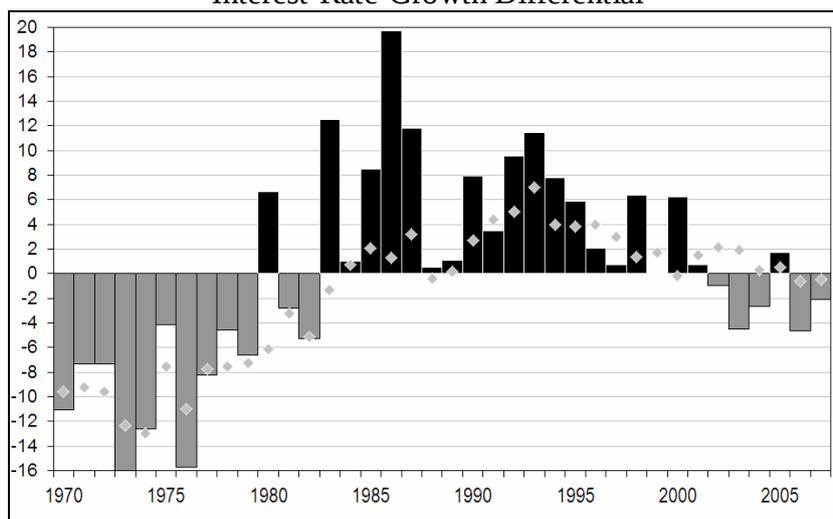
Table 1

	1980-1993	1980-1988	1988-1993
Change in the debt-to-GDP ratio	70.4	36.0	34.4
of which: Interest payments	40.0	17.9	22.2
Primary balance	28.8	16.2	12.6
Stock-flow adjustment	1.6	2.0	-0.4

The burden of interest payments mainly depends on the "snowball" effect that triggers when the implicit interest rate paid to service government debt is higher than the GDP growth rate. When this 'Interest-Rate-Growth Differential' is positive, the debt-to-GDP ratio increases even if the primary fiscal balance (excluding interest payments) is zero.

The 'Interest-Rate-Growth Differential' is negative until early 1980 and then becomes positive during the next two decades, even reaching extremely high levels compared with the same indicator in France (Chart 4).

Chart 4
Interest-Rate-Growth Differential



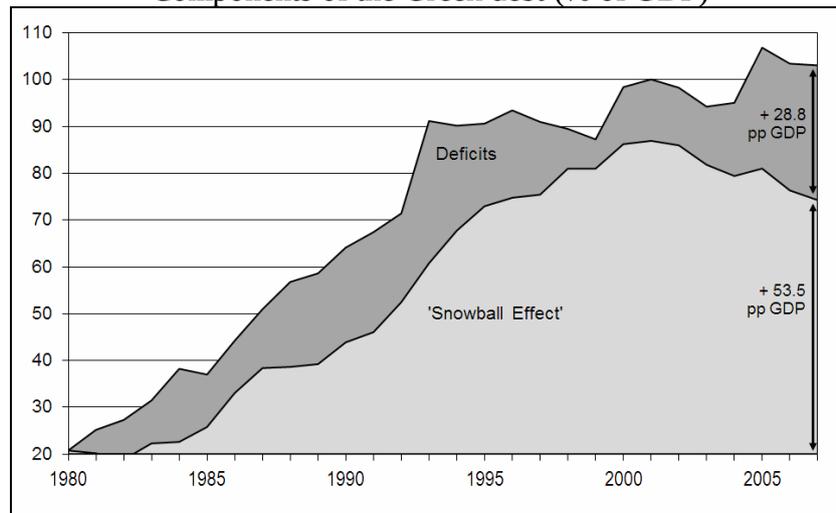
'diamonds' = Interest-Rate-Growth Differential in France (source : Insee)

Between 1980 and 2007, the debt-to-GDP ratio has increased from 20.8% to 103.1%. This increase of 82.3 percentage points of GDP can be decomposed in two elements:

- 53.5 percentage points are related to the cumulative effect of interest payments ('snowball effect')
- 28.8 percentage points correspond to cumulated deficits (including stock-flow adjustments).

Chart 5 below illustrates this decomposition.

Chart 5
Components of the Greek debt (% of GDP)

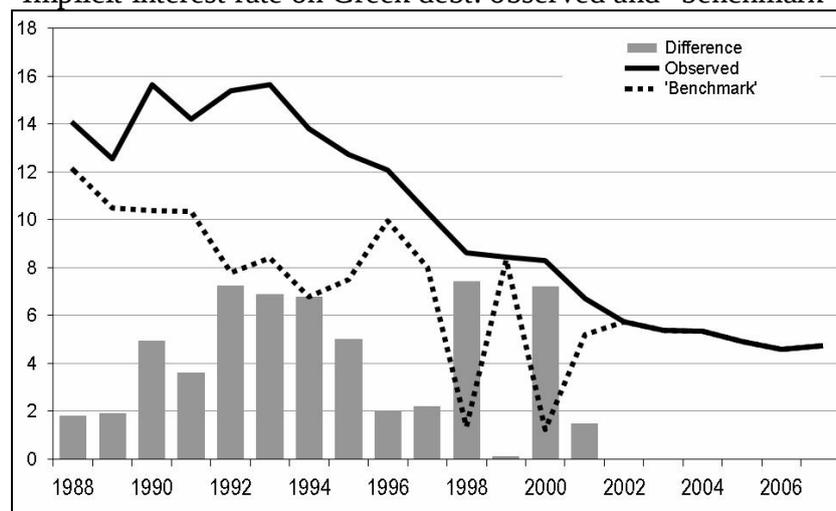


The impact of excessive interest rates

For two decades, the Greek debt was financed with excessive levels of interest rates that led to a sharp growth of debt. To measure the impact of these excessive interest rates, we define a benchmark interest rate by assuming a real interest rate that would have never exceeded 3%.

We compare this 'benchmark' rate with the actual observed rate (Chart 6). There is a considerable difference between both rates: on average over the period 1988-2000, the gap is more than 4 points per year. Although the chosen reference is conventional and therefore contestable, this differential is extravagant.

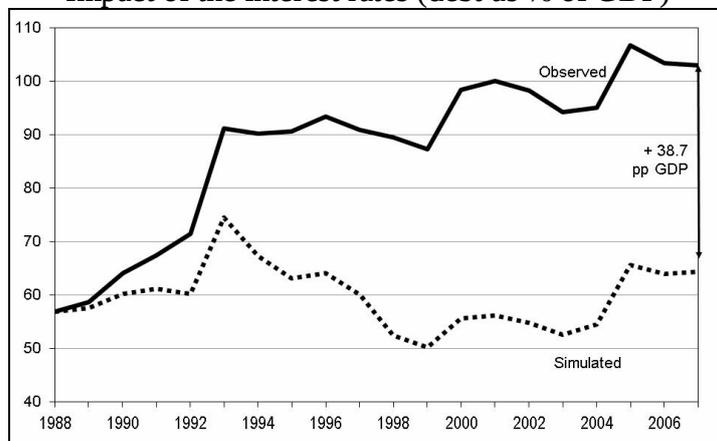
Chart 6
Implicit interest rate on Greek debt: observed and "benchmark"



It is possible to assess the impact of these excessive interest rates on the dynamics of the Greek debt. The method is simple: we replace the effective interest rate by our benchmark, while retaining the same sequence of budget deficits. The result of the simulation is shown in Chart 7.

If the interest rate on Greek debt had not slipped between 1988 and 2000, the debt-to-GDP ratio in 2007 would have been 64.4% instead of 103.1%, a difference of 38.7 percentage points of GDP.

Chart 7
Impact of the interest rates (debt as % of GDP)

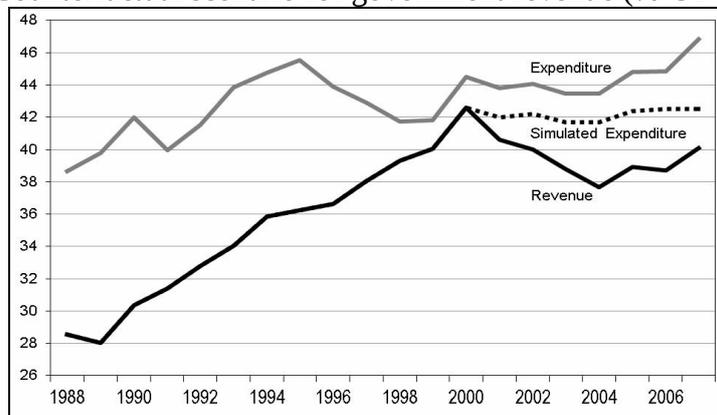


The impact of lower government revenue

The Greek economy is characterized by a chronic budget deficit, which is, in the long term, rather the result of insufficient revenue than of excessive expenditure. However, during the period before joining the euro, revenues steadily rose while expenses remained roughly constant as a share of GDP (Chart 8). This clearly reflected the will to fulfil the Maastricht criteria, at least the standard of a public deficit below 3% of GDP. We know that Greek statistics were rigged (with the help of Goldman Sachs), but the data provided today have largely been ‘cleaned’ and approved by the European Commission. But, as soon as Greece joined the euro area in 2001, government revenue, always as a proportion of GDP, began to fall as quickly as it had risen. Then, from 2005, the rise in expenditure was accompanied by a slower increase in revenue.

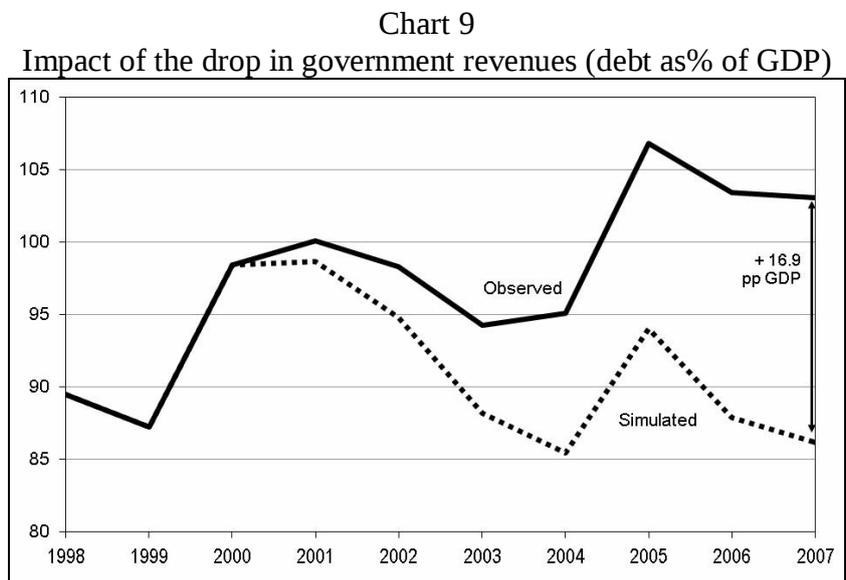
To assess the impact on the public debt of this drop in revenue, we build a counterfactual scenario that assumes the government revenue would have remained roughly constant as a share of GDP from 2000 to 2007 (Chart 8).

Chart 8
Counterfactual scenario for government revenue (% GDP)



This simulation gives the following result (see Chart 9):

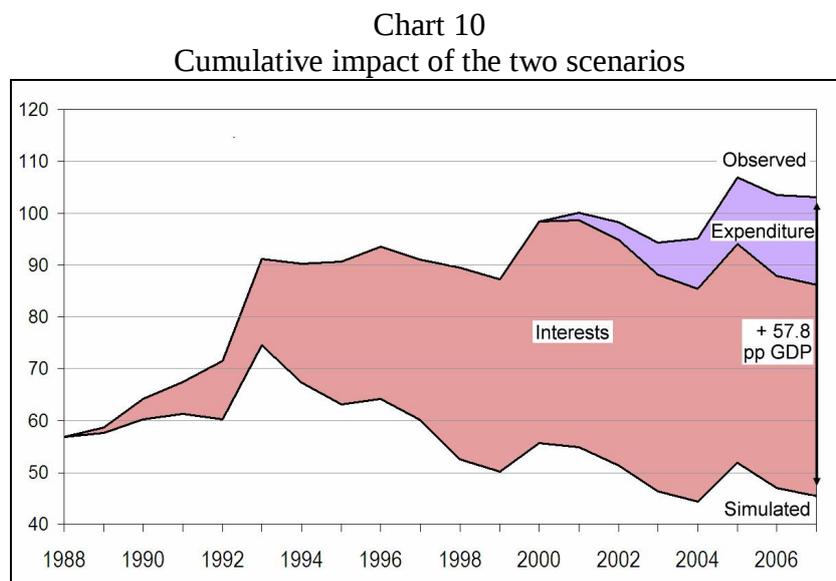
If government revenue had not declined since 2000, the Greek public debt would have represented 86.2% of GDP instead of 103.1%, a difference of 16.9 percentage points of GDP.



A scenario combining the two effects

The combination of these two scenarios ('reasonable' interest rate and maintained government revenue) leads to the result presented in the introduction and illustrated in Chart 10 below:

In 2007, the Greek public debt would have represented only 45.3% of GDP instead of 103.1%, a difference of 57.8% of GDP that can be decomposed into two elements: an interest effect (40.9 points) and a revenue effect (16.9 points).



II. Greek debt: four 'leak variables'

This second part deals with the impact on public debt of mechanisms that contributed to its increase. These four 'leak variables' are the following:

- illicit capital outflows
- excessive military expenditures
- lack of public revenue
- bank recapitalisation

Illicit capital outflows

By definition, there are no reliable estimates of capital flights. We use the evaluations of the NGO *Global Financial Integrity*³. Its method is simple: it compares, in the official data, the financial outflows out of a country with the inflows received from that country by the rest of the world. The difference is used to assess the illicit flows. Obviously, this methodology can only identify the most visible part of the financial flows, and its results must be considered as lower bounds. The detailed data available for Greece⁴ cover the period 2003-2009 and gave the following results:

Table 2. Illicit financial outflows (billion euros)

<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2003-2009</u>
41.2	31.8	0.0	33.0	53.1	2.8	40.5	202.5

Source: *Global Financial Integrity*

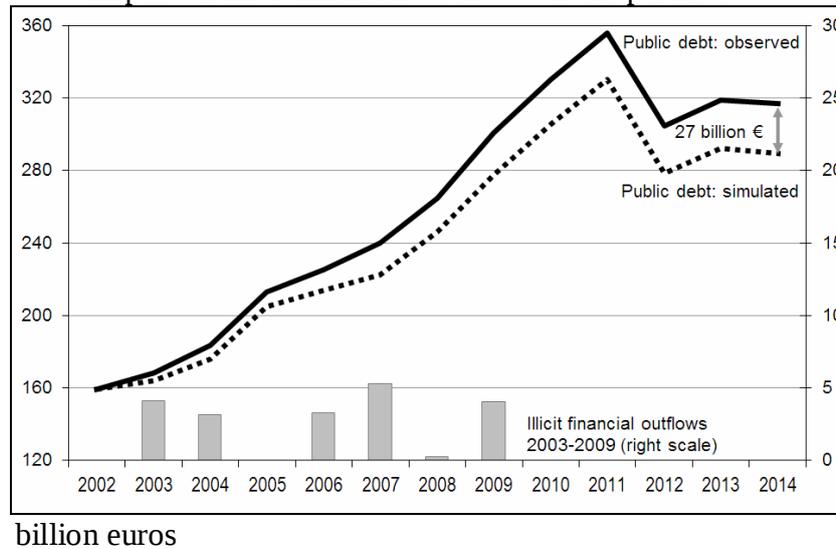
The cumulative flows between 2003 and 2009 amount to 200 billion euros. To assess the impact of these illicit capital outflows, we assume a very moderate tax rate of 10%. The shortfall for government revenue is therefore of 20 billion euros.

With an appropriate legislation preventing illicit financial outflows, and their fair taxation, the Greek public debt would have been inferior by 27 billion euros in 2014: 290 billion instead of 317 billion (Chart 11).

³ <http://www.gfintegrity.org/>

⁴ *Global Financial Integrity*, data (Excel), <http://gesd.free.fr/grillicit.xls>

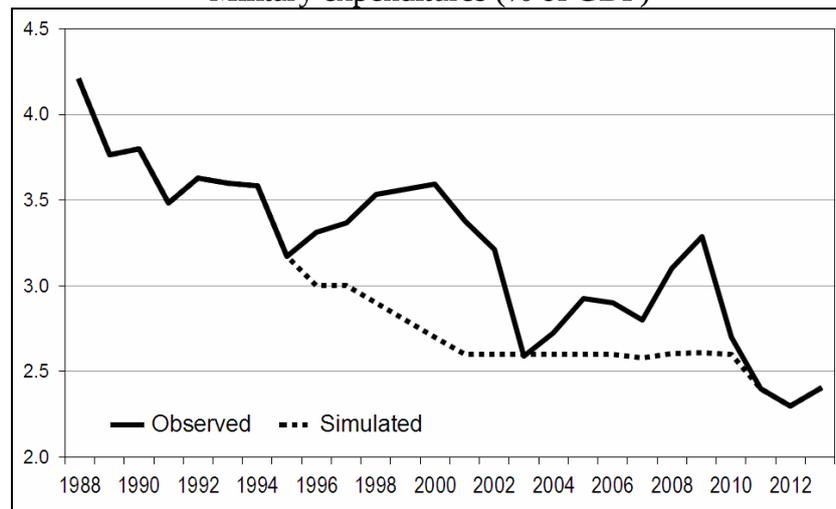
Chart 11
Impact of illicit financial outflows on the public debt



Excessive military expenditures

It is well known that the Greek military expenditures represents an extremely high proportion of GDP. This proportion has certainly declined, from over 4% to less than 2.5% (Chart 12). Military expenditures has however begun to rise again between 1995 and 2000, and between 2003 and 2009. We make a conservative assumption by simply "erasing" those two phases which - it is also well known - have much benefited to French and German industries.

Chart 12
Military expenditures (% of GDP)



Source : SIPRI⁵

⁵ SIPRI (Stockholm International Peace Research Institute), <http://goo.gl/adXrCs>

Lack of public revenue

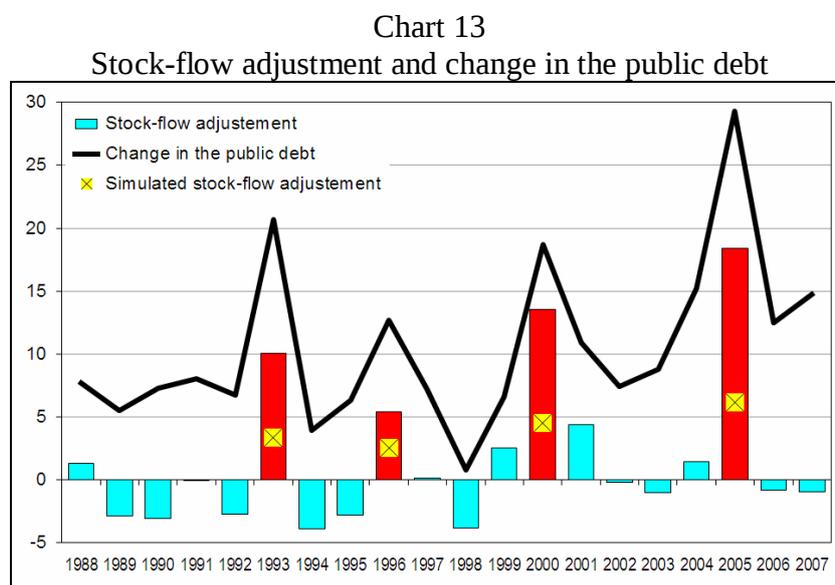
We retake the calibration used above but dividing it by two, for a more ‘conservative’ simulation.

Bank recapitalisation

The basic debt accumulation equation that links the annual change in gross debt to the budget deficit needs an adjustment which is called stock-flow adjustment. It covers a series of transactions and it is not without economic significance. According to the IMF, it is “significantly correlated with fiscal transparency, inflation, fiscal rules, and banking crisis”⁶. Another study underlines the fact that “an important contributor is the acquisition of financial assets: for instance, a government might issue debt in order to purchase shares in a bank that requires recapitalisation”⁷.

This is the hypothesis that we make to treat the outliers in the evolution of the stock-flow adjustment in Greece. The stock-flow adjustment has indeed been particularly high in 1993 (10 billion euros), in 1996 (5.4 billion), in 2000 (13.5 billion) and in 2005 (18.4 billion) as is shown in Chart 13. In other words, the public debt has largely grown beyond the public deficit for these years.

To assess the impact of these transfers - which we assume correspond to banks recapitalisation - we correct the observed values by reducing them by two thirds. The simulated values are indicated by crosses in Chart 13.



Source : Ameco

⁶ Mike Seiferling, “Stock-Flow Adjustments, Government’s Integrated Balance Sheet and Fiscal Transparency”, IMF Working Paper, March 2013, <http://gesd.free.fr/sfafmi.pdf>

⁷ Philip R. Lane, “The European Sovereign Debt Crisis: Appendix”, Trinity College Dublin, June 2012, <http://gesd.free.fr/sfalane.pdf>

Table 3 below summarizes the impact on the public debt of the four counterfactual simulations. The last shows their cumulative impact.

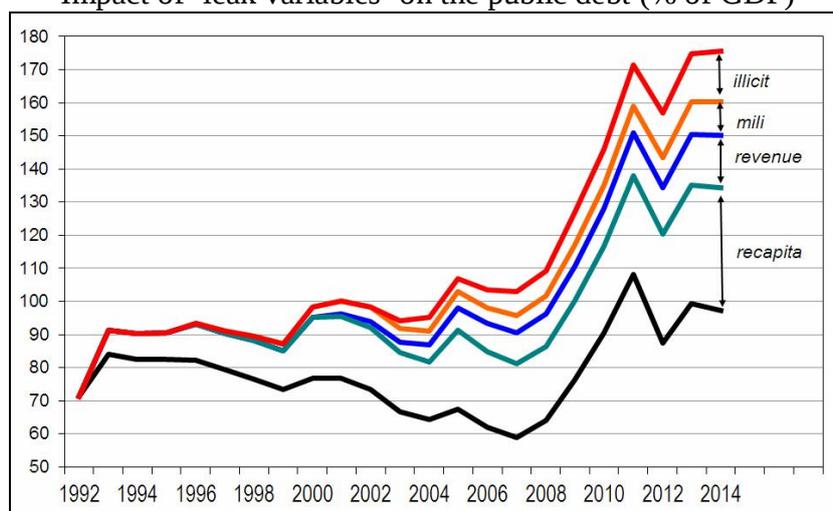
Table 3. Four counterfactual simulations on the 2014 public debt

Counterfactual simulation	1993-2009 cumulated	debt simulated	as% of GDP
1. Illicit capital outflows	20.3	289.6	160.2
2. Excessive military expenditures	11.0	299.0	165.4
3. Lack of public revenue	19.7	288.5	159.6
4. Bank recapitalisation	30.9	250.3	138.4
Cumulative impact	81.9	175.8	97.3

Billions euros. Reminder: in 2014, public debt was 317.2 billion, or 175.4% of GDP.

These results can be illustrated by examining the debt-to-GDP ratio. Chart 14 shows the respective impact of each of the 'leak variables'. The cumulative impact of the four simulations leads to this spectacular result: in 2014, the Greek public debt would have been 175.8 billion euros instead of 317.2, or 97.3% of GDP instead of 175.4%.

Chart 14
Impact of 'leak variables' on the public debt (% of GDP)



Illicit: illicit capital outflows; *Mili*: excessive military expenditures; *Revenue*: lack of public revenue; *Recapita*: bank recapitalisation

We can examine more in detail how these results are obtained by examining the 1992-2009 period covered by the counterfactual simulations. During this period, the Greek public debt rose from 64.3 to 301 billion euros, an increase of 236.7 billion euros, which can be decomposed as follows:

- 61.9 billion euros of cumulated public borrowing (including the stock-flow adjustment).
- 174.8 billion euros of cumulated interests.

We may note in passing the decisive weight of interest payments in the rise of the debt. It is then possible to compare this decomposition with the simulation of the four simulations (Table 4). It introduces two changes:

- the cumulated public borrowing is reduced by 81.9 billion.
- the cumulated interest payments are reduced by 38.3 billion euros.

Table 4
Cumulative change in public debt 1992-2009

	observed	simulated
public borrowing	61.9	61.9
impact of 'leak variables'		-81.9
interest payments	174.8	174.8
additional interest payments		-38.3
change in debt	236.7	116.5

Billion euros

The change in debt between 1992 and 2009 is not 236.7 billion euros but 116.5 billion. Half the change in debt was due to the impact of 'leak variables', directly, or indirectly through the induced interest payments.

These simulations are only as good their assumptions, but the latter have been "reasonably" calibrated and the results found should be considered as a lower bound: half of the increase of Greek public debt between 1992 and 2009 can be attributed to the 'leak variables' taken into account.

In summary, Greece would not be more indebted than France (as a percentage of GDP) without illicit capital outflows, excessive military spending, lack of public revenue and bank recapitalisation without compensation.