Sovereign debt sustainability in Greece during the economic adjustment programmes: 2010-2018

STUDY

A study prepared by CEPS in collaboration with Nation Institute of Economic and Social Research and ECORYS for the European Commission, Directorate-General for Economic and Financial Affairs.

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Abstract

In 2018, Greece exited from eight years of adjustment programmes. During the three programmes, a total of EUR 288 billion of financial assistance was made available to Greece. Greece was the first of the euro area countries requesting emergency financial support to avoid default. At that time, no EU mechanism to deal with sovereign crisis existed.

This study presents an assessment of the role of sovereign debt sustainability in the three adjustment programmes for Greece, focusing on five dimensions: (i) debt sustainability assessment, (ii) debt restructuring, (iii) structural reforms, (iv) the impact of PSI and (v) access to markets. The three programmes were different and their evolution reflects changes in players and economic-political context. Overall, the overarching objective of debt sustainability and market access seems to have been achieved only by the third programme. OSI played a key role in this. The assessment of PSI is mixed: while nominal debt was reduced, debt-to-GDP ratio only fell one year, and then returned to its previous level. Delays and a lack of implementation of reforms broadly emerge as major obstacles to the success of the programmes, their impact on sovereign debt sustainability appears mostly indirect.

List of acronyms

DSA	Debt Sustainability analysis
ECB	European Central Bank
EFSF	European Financial Stability Facility
ELA	Emergency Liquidity Assistance
EMEs	emerging market economies
EMU	Economic and Monetary Union
ESM	European Stability Mechanism
EU	EU – European Union
GDP	Gross Domestic Product
GFNs	gross financing needs
GSEVEE	Hellenic Confederation of Professionals, Craftsmen and Merchants
GGB	Greek Government Bond
HRADF	Hellenic Republic Asset Development Fund
IME	Small Enterprises' Institute
IMF	International Monetary Fund
LTRO	Long-Term Refinancing Operations
MoU	Memorandum of Understanding
MSPE	mean square predictor error
NPL	Non-Performing Loan
NPV	Net Present Value
OSI	Official Sector Involvement
PSI	Private Sector Involvement
SCM	Synthetic Control Method
SMP	Securities Markets Programme
TFGR	Task Force for Greece
WEO	World Economic Outlook

1 Introduction

In the decade between the adoption of the euro and 2009, Greece managed to grow at about 4 % a year; a much higher rate than the rest of the euro area. This outstanding growth performance was essentially driven by a boom in the non-tradable sector, namely consumption and housing, accompanied by high wage increases, rapid credit growth and very large fiscal deficits, financed at very low interest rates.

In late 2009, the global financial crisis exposed the vulnerabilities of the Greek growth model, and the country became the focal point of financial markets. The detection of severe weaknesses in the country's accounting system and statistics resulted in a general government deficit that was much larger than initially stated, turning out to be over 13 % of GDP. Combined with an already very high public debt (115% of GDP at the end of 2009) largely held by foreigner investors,[1] these weaknesses meant that market confidence was suddenly lost. Most rating agencies downgraded the sovereign debt and spreads started to sharply increase. While the crisis appeared to revolve around sovereign debt, the financial sector weaknesses soon materialised as liquidity concerns. In the banking sector, the combination of low capitalisation, high exposure to government liabilities and an unbalanced growth model undermined confidence, reinforcing the liquidity problem.

Against this background, the Greek government requested international financial assistance in the spring of 2010. In May 2010, a euro area/IMF package was agreed on following a joint mission of the European Commission, the ECB and the IMF. The euro area Member States provided bilateral loans pooled by the European Commission (Greek Loan Facility – GLF) for a total amount of EUR 80 billion over three years, while the IMF committed an additional EUR 30 billion under a separate arrangement. A Memorandum of Understanding (MoU) was signed by Greece and the Commission, the latter acting on behalf of the lending Member States. The MoU contained an economic adjustment programme that had the objective to restore market credibility and, hence, financial stability and growth. The programme included a list of policy measures to be implemented over time as conditions for the periodic disbursements part of the financial assistance.

However, in the course of 2011 it became clear that the conditions contained in the MoU would not be sufficiently met and that additional funding would be necessary. Between mid-2011 and early 2012, it was agreed that a new Greek adjustment programme would have to be financed through both official and private sources. Voluntary private sector involvement (PSI), in the form of voluntary rollovers of existing Greek debt at maturity and haircuts, was worked out to achieve a substantial reduction of the required funding.

The second economic adjustment programme for Greece was agreed on in March 2012. It intended to commit the unrealised funds of the first financial assistance package and an additional EUR 130 billion until 2014, financed by the European Financial Stability Facility (EFSF). A new MoU was signed.

In the summer of 2015, the crisis escalated again. At the end of the second programme, a 'stand-off' between Greek authorities and the lenders, combined with the decision of the ECB not to authorise a further increase of the level of emergency liquidity assistance (ELA) from the Bank of Greece, led to the imposition of capital controls to prevent capital flight. In early July, a referendum on whether to accept the bailout conditions was held. In the end, the Greek government made a formal request for stability support from the European Stability Mechanism (ESM). Further financial assistance was eventually agreed on, and

[1] According to Bank of Greece data, in 2009Q3 government liabilities vis-à-vis other countries amounted to EUR 230 billion, i.e. more than 75 % of the total external debt.

Greece signed a third MoU. Financial support was provided with the aim of supporting policies aimed at restoring fiscal stability, safeguarding financial stability, correcting large external and internal imbalances and continuing the reform process until the country was able to return to the markets.

By 2015, about EUR 240 billion of Greek public debt was in the hands of international official lenders, including the ECB, IMF, euro area Member States and the EFSF, who held the largest part at about EUR 140 billion.

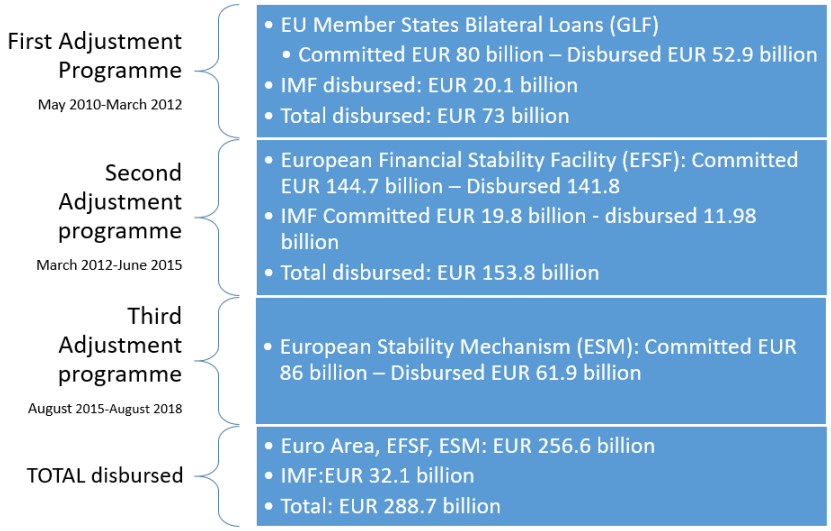
Based on an agreement by the Eurogroup in 2016, the board of directors of the ESM and the EFSF arrived at a set of debt relief measures, including the re-profiling of the EFSF loans.

In summer 2018, after concluding the ESM financial assistance programme and after another re-profiling of the EFSF loans, Greece exited from eight years of adjustment programmes. The Commission decided to activate the enhanced surveillance framework, and Greece was fully reintegrated into the European Semester framework of economic and social policy coordination. This marked a shift towards a new regime for Greece.

Overall, the programmes were meant to overcome the economic and financial crisis that led Greece to request assistance in May 2010, when the sovereign and the banking sector were increasingly cut off from market funding. Prepared in a challenging economic and political environment, the programmes were essentially intended to facilitate large economic adjustments to redress the Greek economy and were accompanied by financial support and technical assistance.

During the three programmes, EUR 256.6 billion of financial assistance was made available to Greece in the form of bilateral loans from EU Member States (the GLF) and loans from the EFSF and the ESM. An additional EUR 32 billion came from the IMF (see Figure 1).

Figure 1. Euro area, EFSF/ESM and IMF assistance for Greece



Source: ESM

The provision of financial assistance was conditional on Greece implementing policy reforms as well as the economic and financial policies set out in the three MoUs. These policy programmes were jointly developed by staff from the Commission, IMF, ECB and Greek authorities and endorsed by the Eurogroup.

This study presents the findings of an assessment of the programmes' design, implementation and outcomes in relation to the issue of debt sustainability. The assessment consisted of looking at how the design and implementation of the three programmes contributed to the evolution of sovereign debt and the attainment of the programmes' objectives concerning sustainability in the period 2010-2018.

The approach combines qualitative and quantitative tools and analysis, with specific inputs from stakeholder interviews, counterfactual scenarios and considerations related to the political context.[2]

The analysis presented in this report pays special attention to the European Commission's role and action. Although decisions and measures taken by IMF, EFSF, ESM and other institutions are accounted for, they are not the direct object of the study.

Against this background, the analysis is centred around five questions, indicated in the terms of reference and described in detailed below. The answers to these questions form the core of the study, which will be used to inform the European Commission's *ex post* evaluation of the programmes that is planned for 2020.

The rest of the study is organised as follows. Section 2 describes some key features of the Greek economic situation and the context in which the crisis was managed. Section 3 reviews the official documents used for the analysis and identifies the intervention logic of each of the three programmes. Section 4 presents the analysis conducted to answer each of the five questions under study. Section 5 presents the overall assessment emerging from the analysis. Section 6 concludes.

[2] Annex 2 describes the methodological approach.

2 The onset of the crisis and Greece fundamentals

Greece was the first of the euro area countries to be on the brink of sovereign default and in need of requesting emergency financial support to avoid it. This happened when the EMU was not yet endowed with a governance structure and funds to be able to respond quickly and within a framework to such a crisis.

This is one of the reasons[3] that the IMF was involved in providing assistance to Greece, both to provide financial support and to design a system of incentives to avoid moral hazard. The IMF was the prime international organisation with very long-standing experience in dealing with sovereign financial crises, offering financial assistance and designing macroeconomic adjustment programmes.

However, Greece was clearly very different from all other cases. For the IMF, the 'standard' case was a stand-alone country, typically a developing or an emerging economy country, with its own central bank and national currency but with debt denominated to a large extent in a foreign currency. In addition, based on its mandate, IMF interventions were and still are triggered by (the risks of) balance-of-payment crises. Greece, in contrast, was a developed economy with very large public debt and was part of a monetary union with a reserve currency. While these differences were clear from the beginning, the structure of the first Greek adjustment programme followed an IMF approach that was rather standard.

However, according to its Independent Evaluation Office,[4] the IMF approved a decision to provide Greece with exceptional access to financing without seeking a restructuring of Greece's sovereign debt, although the debt could not be 'deemed sustainable with a high probability'. To make this possible, the IMF Board had to change one of the criteria of the IMF's policy governing exceptional access by introducing what became known as the systemic exemption clause. According to this clause, exceptional access can be offered in case of a *high risk of international systemic spillover*.[5] This was deemed to be the case for Greece.

Against this background, the IMF concluded a stand-by arrangement[6] in 2010, which was cancelled in 2012 and replaced by an Extended Fund Facility, with a larger amount of financial assistance and a longer repayment period.[7]

In practice, in the case of the first Greek adjustment programme, sovereign debt sustainability was not the key driver of the decision to provide financial assistance nor the objective of the adjustment programme. It was expected that '*disciplined implementation of the programme would ensure external and sovereign debt sustainability and go a long way towards restoring Greece's credibility vis-à-vis foreign investors, as well as helping the country to recover successful access to international capital markets*'.[8]

The underlying assumption was that the EU and IMF's provision of unprecedented amounts of financial means would prevent a default and that conditions attached to the loans—

[3] Germany was one of the main advocates of the IMF participation in the Greek programmes because of its reputation for implementing tough conditionality.
[4] See https://ieo.imf.org/en/our-work/Evaluations/Completed/2016-0728-the-imf-and-the-crises-in-greece-ireland-and-portugal
[5] This clause had consequences beyond Greece and was invoked by other countries, notably Ireland and Portugal. It was removed in 2016.
[6] https://www.imf.org/external/pubs/ft/scr/2010/cr10110.pdf
[7] In 2012, the IMF approved a four-year, EUR 28 billion arrangement under the Extended Fund Facility in support of the authorities' economic adjustment programme. The arrangement entailed exceptional access to IMF resources, amounting to 2,159 % of Greece's quota and a longer repayment period of up to 10 years.
[8] The Economic Adjustment Programme for Greece (2010), p. 28.

front-loaded fiscal consolidation and structural reforms—would restore growth and confidence.

In this respect, it is worthwhile to recall that the dominant view in 2010 on sovereign default was embedded in an influential IMF paper, in which sovereign default in advanced economies was qualified as unnecessary, undesirable and unlikely.[9] In addition, the Greek crisis occurred less than two years after the collapse of Lehmann, and fears of an international spillover were high.

In the course of 2011, reality turned out to be different from expectations set in the programme, and views on debt restructuring started to change. On the one hand, the autumn of 2011 was dominated by a political debate about the moral hazard consequences of bailing out a member of the monetary union and the need to shield euro-area taxpayers from losses that should be borne by private investors. On the other hand, the large decline in growth in Greece and persistent fiscal deficits resulted in a growing debt-to-GDP ratio, which led to the first programme's failure to restore market access.

Debt developments during the first programme—mostly driven by an inability to decrease the fiscal deficit and a large recession—made it clear that the debt-to-GDP ratio would continue to grow, requiring increasing financial support from official lenders, unless debt was cut. In early 2012, the Eurogroup agreed on the second programme, stating clearly that '*[e]nsuring debt sustainability and restoring competitiveness are the main goals of the new programme*'.

In fact, the debt-to-GDP ratio never decreased persistently during the entire duration of the three programmes. After PSI, the debt-to-GDP ratio increased to 177 %, higher than before the restructuring in 2010.

During this period, the EFSF—which was quickly created in 2010 as a temporary facility to offer emergency support—was replaced by a permanent mechanism, the ESM. Over time, the EFSF/ESM became the largest creditor of Greece. It also became the main channel to implement official sector involvement (OSI) and the main financier of Greece in the third adjustment programme.

In 2015, the Eurogroup stated that it was ready to consider possible additional measures to ensure that Greece's gross financing needs (GFNs) remained at a sustainable level. On the condition that measures agreed on in the programme would be fully implemented, the Eurogroup endorsed a set of short-term debt relief measures for Greece that were expected to have a significant positive impact on the sustainability of its public debt.

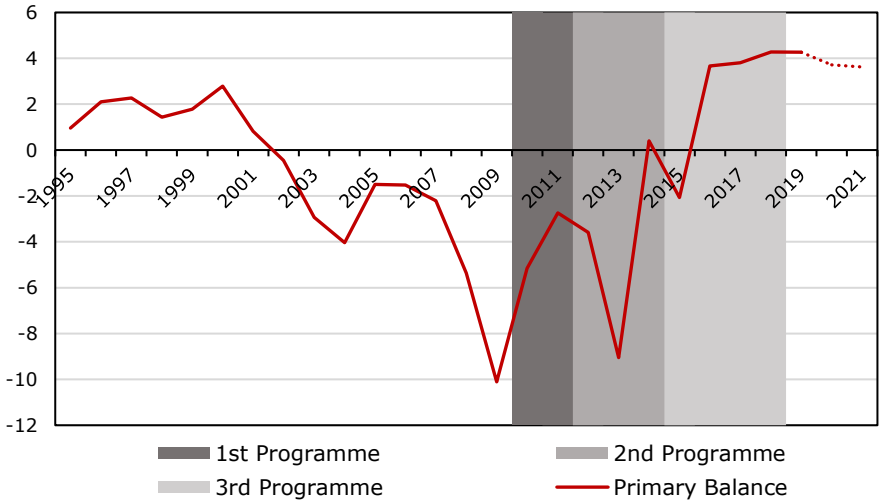
In order to better understand why Greece faced such great challenges and why it eventually needed three adjustment programmes, it is instructive to consider some key features of the Greek economy.

2.1 The macroeconomic fundamentals

There is no doubt that Greece needed to make a larger fiscal correction than other countries that had to implement an adjustment programme. Its fiscal position in 2009 was simply unsustainable, with a deficit well above 10 %.

[9] Cottarelli et al. (2010).

Figure 2. Net lending (+) or net borrowing (-) excluding interest

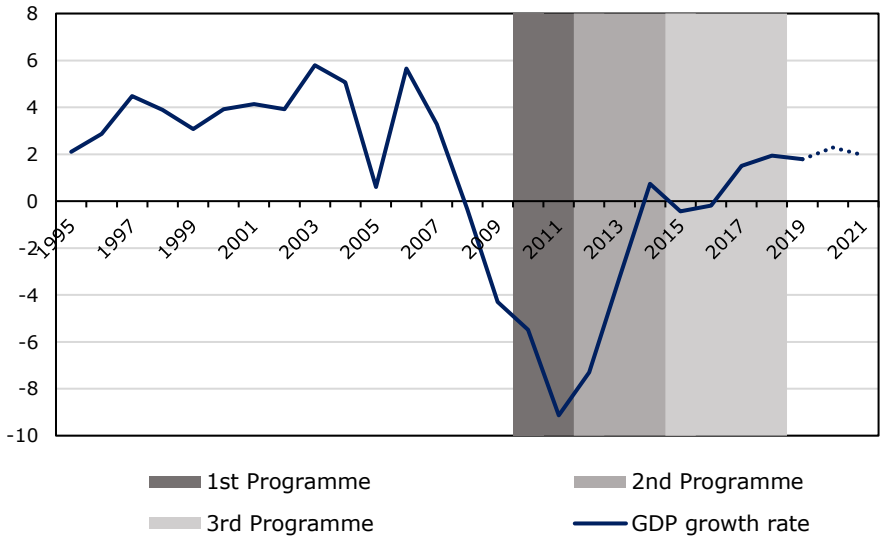


Source: AMECO

Note: general government: ESA 2010 (UBLGI), percentage of GDP (Excessive Deficit Procedure).

However, not anticipated at the time was the strong impact of the necessary fiscal consolidation on output. Any fiscal consolidation has a negative impact on demand and hence on GDP (see ***Figure 3***). ***Figure 3.*** In Greece, however, it was exceptionally large. Alcidi and Gros (2012) discuss several features of the Greek economy that point to a large fiscal multiplier, e.g. low savings, low (effective) tax rates and a relatively low weight of trade in the economy.

Figure 3. Real GDP, growth rate



Source: AMECO

2.1.1 Low openness

A low degree of trade openness not only increases the size of the multiplier but also makes it difficult for exports to provide an offset to fiscal tightening unless the economy significantly changes in terms of the allocation of resources between the tradable and the

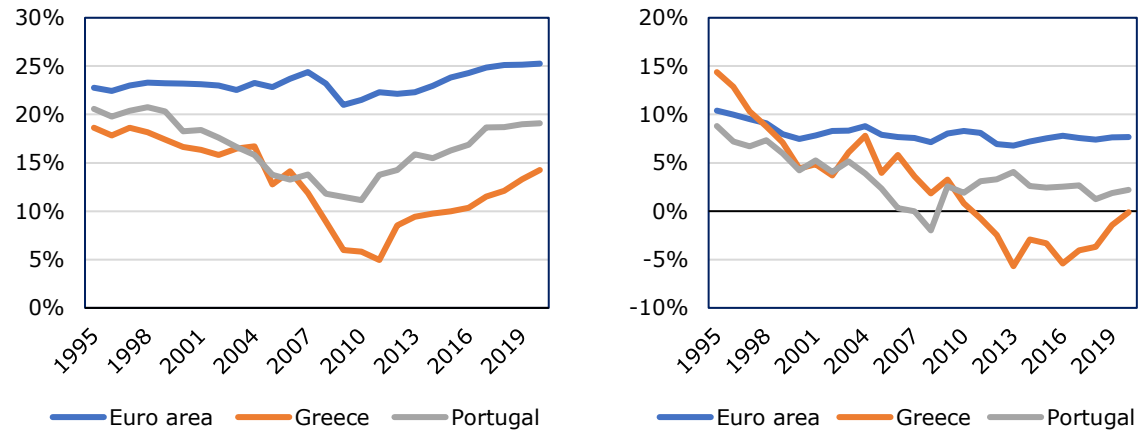
non-tradable sector. Accordingly, the problem facing Greece can be described as the need for very large adjustments while there is a clogged safety valve.

Most explanations for the poor export performance of Greece state that the country has little of 'substance' to export. For this reason, it was not very realistic to expect significant growth in exports. However, Gros et al. (2014) challenge this view by comparing Greece to Portugal, which in the period up to 2007-2008 recorded a similar amount of exports (of goods and services). Böwer et al. (2014) took a systematic look at what they call the puzzle of Greece's missing exports to understand what is holding Greek exports back. They argue that weak institutional quality accounts for a large part of the poor export performance. Using a sophisticated econometric analysis, the paper shows why Greece's export potential has not been exploited. The authors argue that while the country managed to achieve major improvements in cost competitiveness during the adjustment programmes, structural reforms should also address non-cost competitiveness factors, such as the underlying institutional deficits.

2.1.2 Low propensity to save

Another feature of the Greek economy is the low savings rate. Since mid-1995, the propensity to save as part of the total economy started to decline to reach a trough of 5 % in 2011 (Figure 4, left panel). This was mostly driven by a sharp and persistent decline in private sector savings, which became negative in 2011 and are still negative (**Figure 4**, right panel).

Figure 4. Savings – Gross savings, total economy (LHS) and net savings, private sector (RHS)

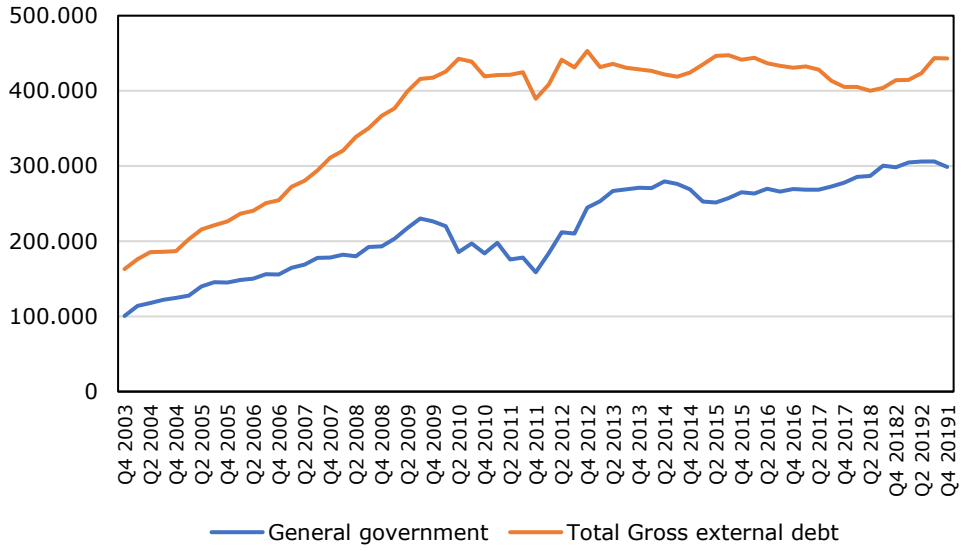


Source: AMECO

As mentioned above, low savings increase the fiscal multiplier and enlarge the negative effect of fiscal consolidation on GDP. Low savings over a long period, as in Greece, also have implications for debt and potentially its sustainability.

In Greece, low savings combined with sustained fiscal deficits meant that accumulated debt was financed by foreigners (see Figure 5). Total external debt increased by 170 % between 2003 and 2007 to reach about 200 % of GDP. Half of this was debt of the general government. In times of crisis, foreign-held debt becomes more exposed to the volatility of international lenders, and the debtor can incur liquidity problems. This was clearly the case for the Greek government.

Figure 5. Greece external debt position (in million EUR)

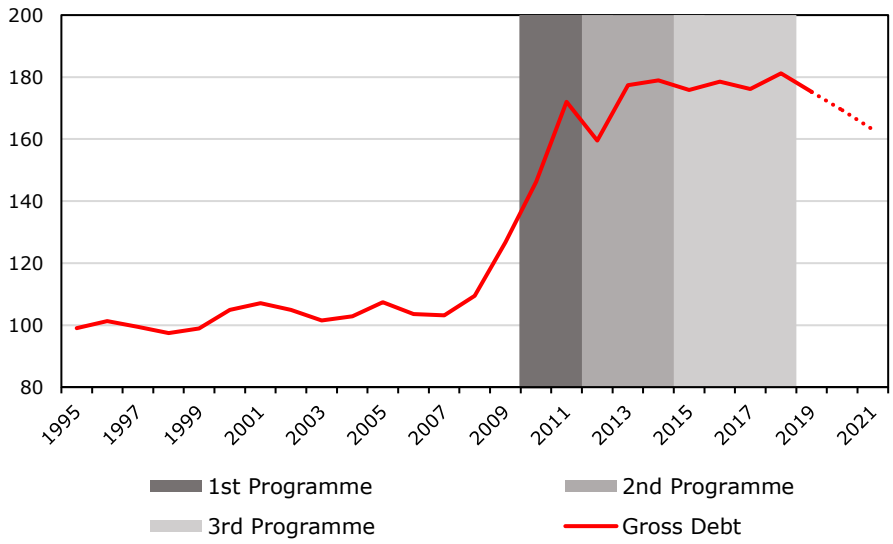


Source: Bank of Greece

2.1.3 Debt dynamics and low growth

Besides the large and persistent fiscal deficits, the large and persistent recession had a highly negative impact on the debt pattern as well.

Figure 6. General government consolidated gross debt (% of GDP)

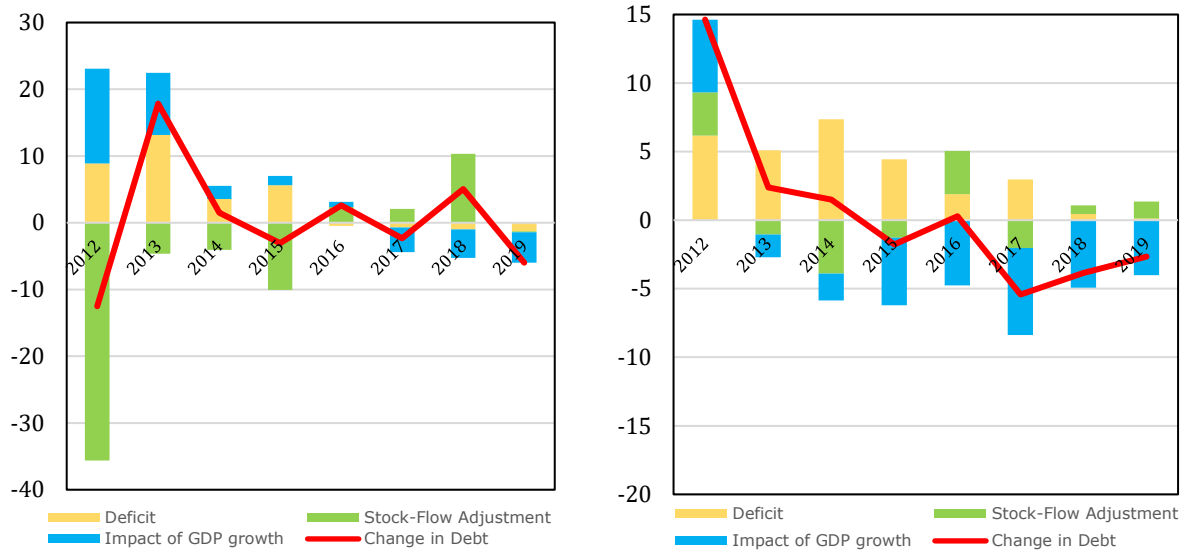


Source: AMECO

Note: Excessive deficit procedure (based on ESA 2010) (UDGG), percentage of GDP (Excessive Deficit Procedure).

The magnitude of this negative effect on the debt-to-GDP ratio became patently clear after PSI. As illustrated in Figure 7, the negative contribution of growth to the debt dynamics appears to offset the reduction in debt coming from fiscal consolidation and even the reduction in the face value of debt driven by PSI.

Figure 7. Debt dynamics decomposition, % of GDP: Greece (LHS) and Portugal (RHS)



Source: AMECO and authors' computations

Note: The columns are stacked columns for: deficit in yellow (with positive sign meaning a negative budget balance), the stock-flow adjustment on general government consolidated gross debt in green, and the impact of the nominal increase of GDP on general-government consolidated gross debt in blue. The red line is the change in debt with the respect to the previous period. All data series are expressed in percentage of GDP.

PSI shows up in Figure 7 (left panel) as 'stock-flow adjustment' for the year 2012 and is worth about 35 % of GDP of that year.

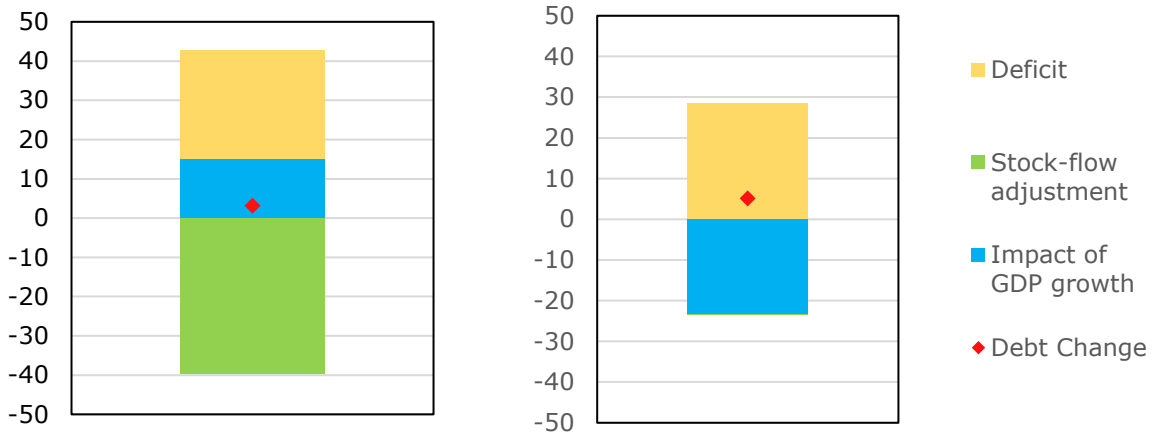
The stock-flow adjustment explains the difference between the change in government debt and the government deficit/surplus for a given period. The stock-flow adjustment is usually explained by the net acquisition of financial assets, debt adjustment effects and statistical discrepancies.[10] The high number in Greece's case is the result of the debt adjustment (-58.5 %), essentially driven by redemption of debt below the nominal value (-58.8 %). This was partially compensated for by the net acquisition of financial assets (+23.5 %), essentially deposits (mostly disbursement of loans), debt securities (holdings of notes provided by the EFSF for the recapitalisation of credit institutions) and loan assets from the EFSF.

This indicates that PSI did indeed reduce debt by a substantial amount. The same figure also reveals that the impact of (negative) growth combined with large deficits contributed to increasing debt substantially in 2012 and 2013 and more than offset the reduction driven by PSI. Compared with Portugal, the key difference besides PSI—which Portugal did not experience—is growth performance.

If one cumulates the different components of debt change in the period 2012-2019, one finds that Greece and Portugal experienced the same small increase (see Figure 8). Both countries had similar deficits, but while the growth factor helped reduce the debt ratio by over 20 percentage points for Portugal, it contributed to a deterioration of over 10 points in Greece: a difference of more than 30 percentage point of GDP.

[10] See Eurostat for details.

Figure 8. Sum of debt changes over 2012-2019 (in % of GDP), Greece (LHS) and Portugal (RHS)



Source: AMECO and authors' computations

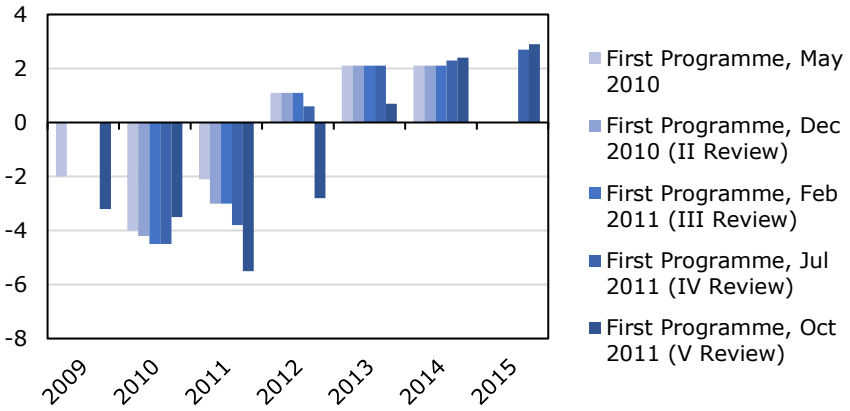
Note: The figure represents the cumulative debt changes over the period 2012-2019. The columns are stacked columns for: deficit in yellow (with positive sign meaning a negative budget balance), the stock-flow adjustment on general government consolidated gross debt in green, and the impact of the nominal increase of GDP on general-government consolidated gross debt in blue. The red diamond is the sum of the debt changes over the period considered. All data series are expressed in percentage of GDP. The left panel is for Greece, while the right one is for Portugal.

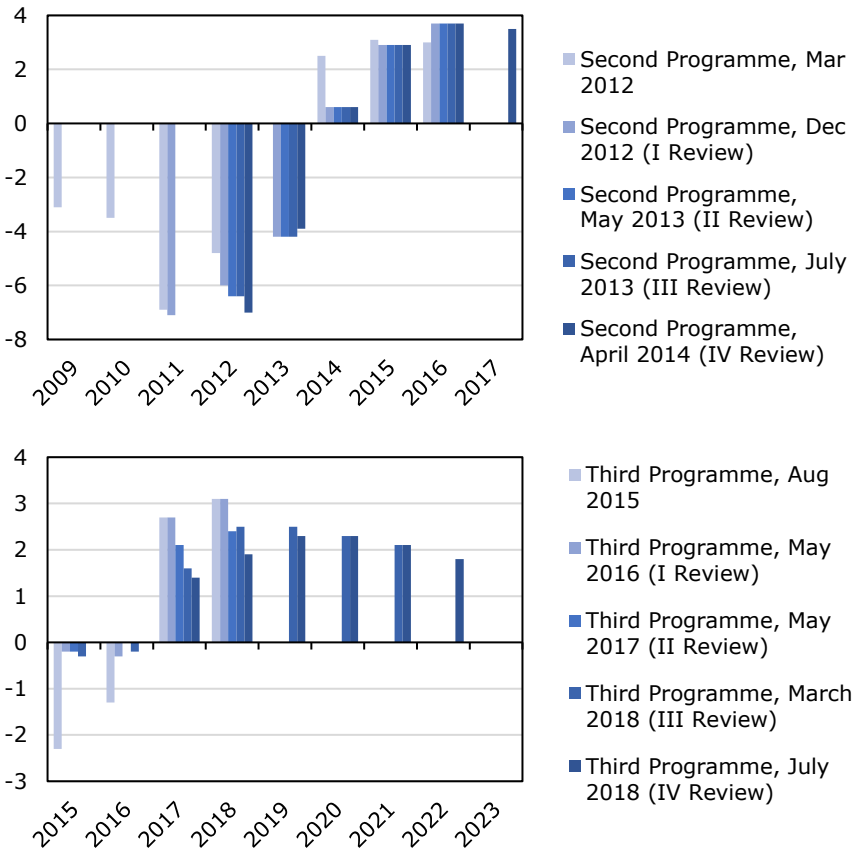
Despite PSI, Greece did not do better in terms of the debt-to-GDP ratio than Portugal (over the entire period) because the what was gained through PSI was almost fully offset by lower growth.

2.1.4 GDP growth forecast error

The fall in GDP growth in Greece was something that was consistently underestimated. Figure 9 reports the GDP growth forecast error based on the programmes' documents. The large error of the first two programmes offers evidence of how they went off track and resulted in a miscalculation of up to 7 % of GDP in 2012.

Figure 9. GDP growth forecast error, three adjustment programmes and reviews





Source: NIERS elaboration, based on three programme and relative reviews

The very large forecast errors in real growth, which also had an impact on the budget forecasts, raise the question of whether the programmes were based on realistic assumptions. The recession was much deeper than anticipated, for a number of reasons which persisted over time. Other than fiscal consolidation, investment fell dramatically even before the programmes and never fully recovered. In addition, exports did not substantially recover, not even after the large wage adjustment[11]. Moreover, because compliance with and actual implementation of structural reforms were at best partial and delayed, the supply side of the economy was unable to contribute to GDP growth.

[11] See, among others, Gros et al. (2014).

3 Review of the official documents and intervention logic of the three adjustment programmes

This section reviews the official documents of the three economic adjustment programmes to understand which debt sustainability paradigm prevailed at the time of each programme's implementation and to understand the role of sovereign debt sustainability in the context of the intervention logic guiding each of the decisions.

For this purpose, the study considers the main documents that accompanied the launches of the three programmes and the subsequent reviews performed to monitor their implementation. These documents were retrieved from the 'Financial assistance to Greece' section of the European Commission's website.

The analysis and review of the official documents consisted of two steps.

First, we performed an automated text analysis of all collected documents using text-scraping techniques[12] to retrieve quantitative information that was used to assess whether the focus of the programme changed over time. In particular, occurrences of the word 'debt' were tracked. To obtain a relative measure, the evolution of other keywords was tracked as well. Annex 1 contains more details about this analysis. However, no significant results could be inferred, other than that debt is the most recurring word among those considered and that its importance remained rather stable over time.

The second step of the analysis focused in more detail on the official documents of each of the adjustment programmes to: (i) build a timeline with relevant qualitative information (including policy decisions and events) emerging from those documents and capturing potential changes in the approach to debt sustainability, and (ii) identify the intervention logic of each of the programmes with respect to debt sustainability, following the framework set out in the European Commission's evaluation standards.[13] The latter entails the difficult exercise of identifying the difference between the design of the programme and its implementation. In addition, given that debt sustainability is strongly dependent on other elements of the programmes, it is sometime complicated to clearly categorise inputs, outputs and impacts. Last, in building the intervention logic, the focus is mostly on the role of the European Commission. In the identification of its building blocks, however, it is often difficult to keep this role completely separate from decision and actions made by the EFSF/EMS and IMF.

In the next three subsections—one for every adjustment programme—we show the results of the second step of the analysis.

3.1 The three adjustment programmes

3.1.1 First programme, 2010-2012

The first programme was launched in May 2010, when the Greek economy faced severe economic conditions along several dimensions. First, it had a very high debt-to-GDP ratio and fiscal problems were partly hidden by unreliable statistics. Second, the labour and product markets were very rigid. Third, competitiveness was very low. Finally, the Greek banking sector was experiencing an economic and confidence crisis. The programme was designed to: (i) secure fiscal sustainability, (ii) safeguard financial stability, (iii) cover financing needs and (iv) boost potential growth and competitiveness. The ultimate, overarching aim was to restore the credibility vis-à-vis the private investors. The joint agreement with Greece on the economic adjustment programme, negotiated by the

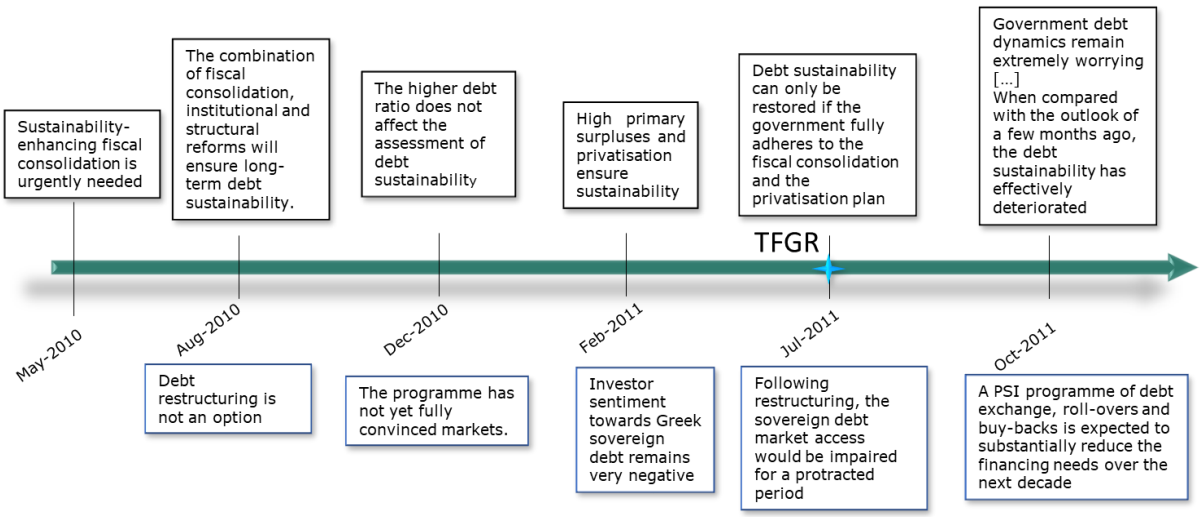
[12] This is implemented in Python, an open source programming language.
[13] The description of the approach can be found in Annex 2.

European Commission, IMF, and ECB, concerned the implementation of fiscal consolidation measures, structural reforms and fiscal-structural reforms (i.e. a reform of the Greek pension system). This programme was supported by financial assistance provided by the IMF and the Member States amounting to EUR 110 billion. These disbursements were subject to quarterly reviews of conditionality.

However, an examination of the five reviews following the launch of the programme shows that conditions were not met by the end of the arrangement's period. The timeline in Figure 10 shows how the perception in terms of debt sustainability changed over time by including the most meaningful declarations in terms of debt sustainability. We start with the urgency of obtaining fiscal consolidation that was claimed in the adjustment programme. Then, we go through a period when, despite the huge upward data revision, the debt was considered to be sustainable. Finally, we end up with 'worrying debt dynamics' in October 2011.

In the blue rectangles (below the timeline), we report some sentences that show the perception at the time of how to deal with the changing circumstances. It is interesting to notice that during the first review in August 2010, debt restructuring was not considered a real possibility, while in the fourth review in July 2011, an entire box was dedicated to explaining how debt restructuring could be disruptive to Greece and the other countries. However, in October 2011, after a severe deterioration of sovereign debt and in contrast to the previous reviews, it was claimed that debt restructuring in the form of PSI was crucial to restoring debt sustainability.

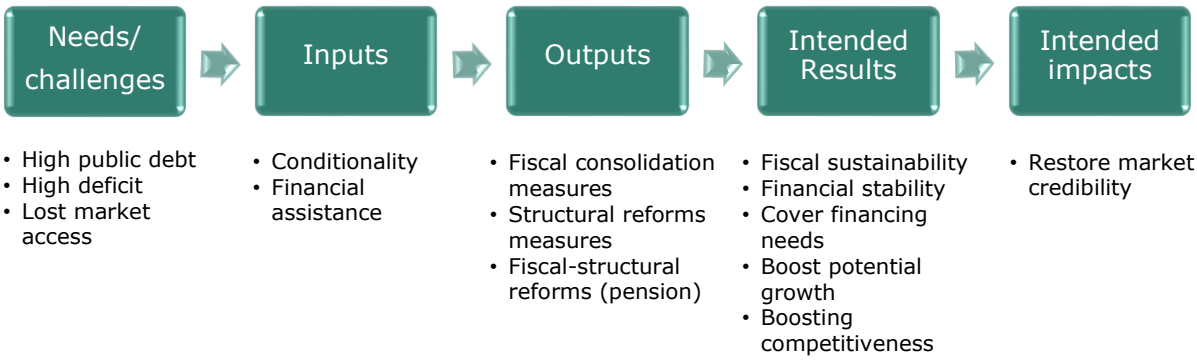
Figure 10. Timeline: 1st adjustment programme (2010-2012)



Source: Authors' own elaboration

Based on this information, **Error! Reference source not found.** illustrates the intervention logic guiding the first Greek adjustment programme.

Figure 11. Intervention logic: 1st adjustment programme (2010-2012)



Source: Authors' own elaboration

3.1.2 Second programme, 2012-2015

The first programme was undermined by an unstable political situation, issues related to administrative capabilities and a much-deeper-than-expected recession. The implementation of structural reforms was only partially achieved and did not contribute to growth, as was previously forecasted. Moreover, important fiscal targets were missed. Thus, a second adjustment programme was launched in March 2012. The IMF, through the Extended Fund Facility, and the Member States, through the European Financial Stabilisation Facility, agreed to a bailout of EUR 130 billion plus the undisbursed amount from the first adjustment.

Three significant differences between the overall design of this programme and that of the first programme emerge.

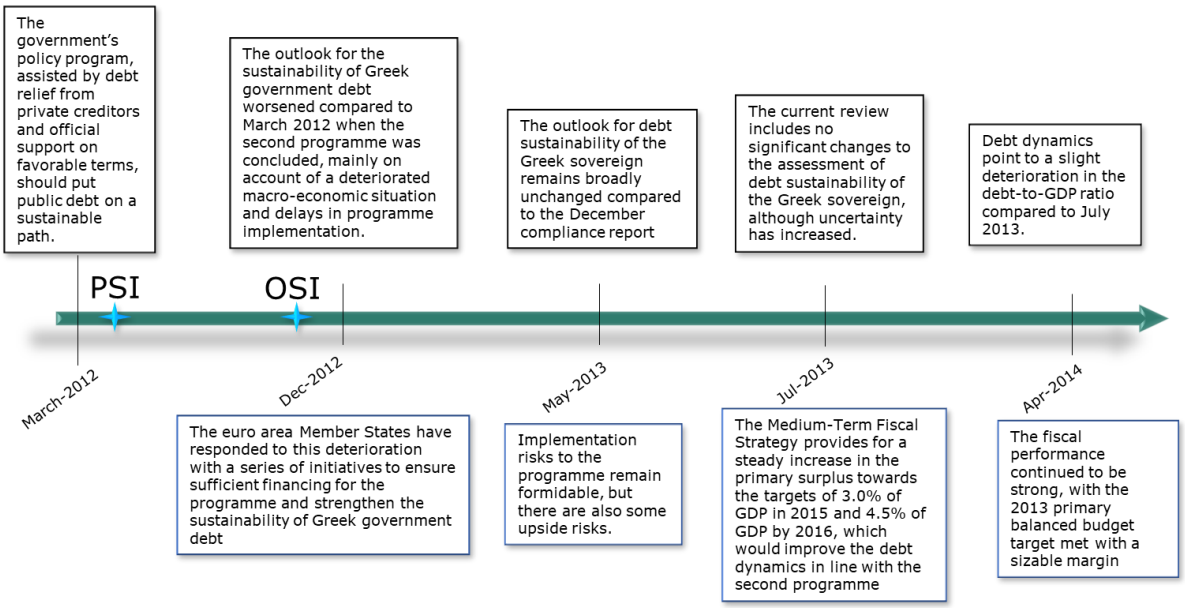
First, it was recognised that the Greek economy had no market access; thus, it was necessary to use official sources to meet the financing needs of the country. Therefore, this became a clear final objective of the programme, while in the first programme it was initially assumed that Greece still had limited access to the market.

Second, in this programme the importance of growth was emphasised, not only as a clearly intended result but also in the structural reforms necessary for the success of the programme, which were defined as 'growth-enhancing' reforms.

Finally, after a deterioration of debt dynamics, debt sustainability became an important objective of this programme. This is also highlighted by the introduction of an entire section, in the review of the programme, focusing on debt sustainability analysis (DSA). As we have previously seen, in July 2011 debt restructuring was seen as inevitable. Therefore, PSI was implemented through a debt exchange involving a haircut on private sector investment between March and April 2012. The following November, limited debt relief from official creditors (OSI) was also provided.

The timeline in Figure 12 shows that the debt outlook worsened in December 2012, due to a deterioration of the economic situation and delays in the implementation of the programme. In early 2013, the second review defines the situation as of 'formidable implementation risks', arising from the Greek economic and political situation but possibly also from the weak euro area context. In the course of 2013, the situation appeared to stabilise but in early 2014 debt dynamics pointed to a new deterioration of the debt-to-GDP ratio.

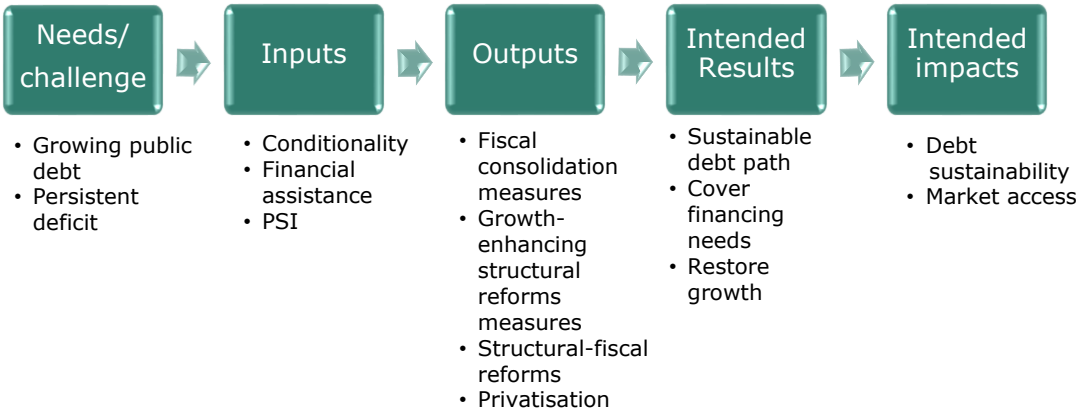
Figure 12. Timeline: 2nd adjustment programme (2012-2015)



Source: Authors' own elaboration

Based on this information, Figure 13 illustrates the intervention logic guiding the second Greek adjustment programme.

Figure 13. Intervention logic: 2nd adjustment programme (2012-2015)



Source: Authors' own elaboration

3.1.3 Third programme, 2015-2018

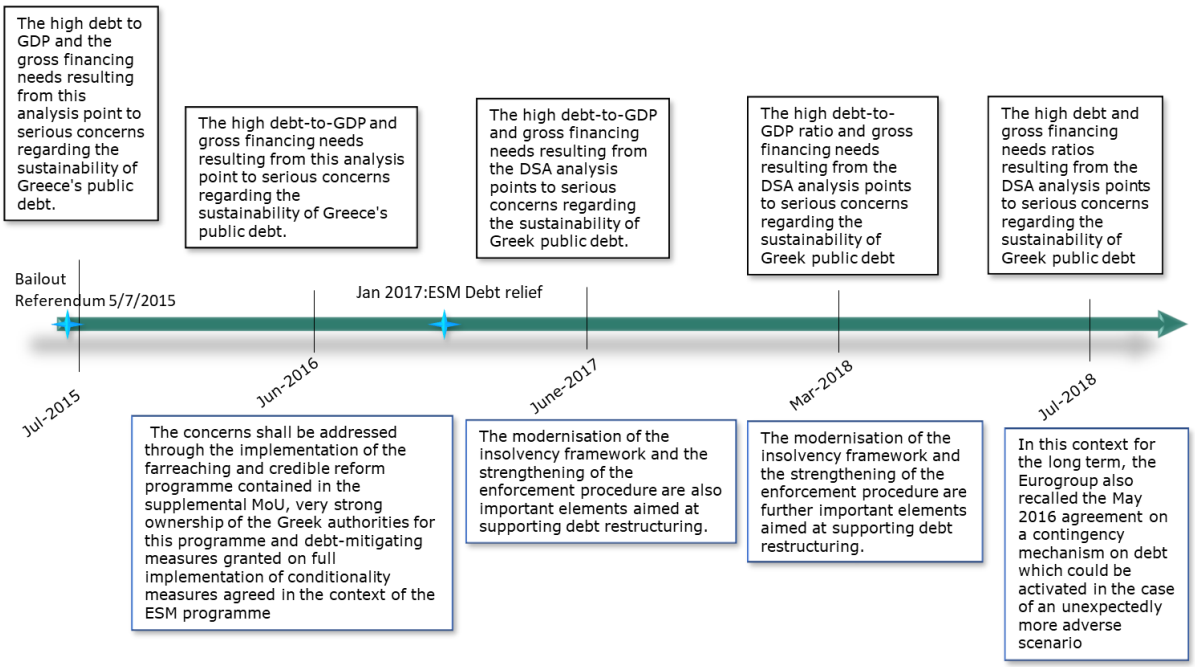
The second adjustment programme expired in June 2015, but the possibility of asking for additional financial assistance had been debated since the beginning of the year. In a context of very high domestic political uncertainty, a referendum about the conditions attached to the financial support and tense negotiations, eventually, the Greek government accepted a new adjustment programme. In August 2015, the Eurogroup agreed on additional measures to ensure that Greece's gross financing needs remained at a sustainable level. This included up to EUR 86 billion in financial support, over the period 2015-2018, to be provided by the ESM.

During the third programme, the ESM and the EFSF implemented a set of short-term debt relief measures to improve Greek debt sustainability. These measures were introduced in January 2017 to reduce the interest rate risk and ease the repayment burden for Greece.

It is interesting to note that, even though the programme was successfully concluded in 2018, the analysis of the official documents shows that statements in terms of DSA are very conservative, highlighting 'serious concerns' about the debt dynamics.

This cautious sentiment also appears when looking at the overall perception of how to deal with changing circumstances, shown in the blue rectangles in **Figure 14**. In July 2018, one month before the end of the programme, the possibility of 'an unexpectedly more adverse scenario' that could have changed the results of the programme was still being considered.

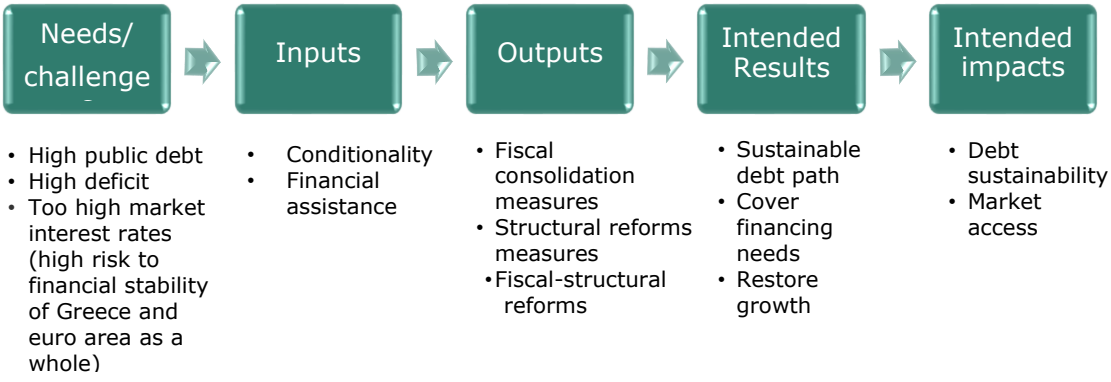
Figure 14. Timeline: 3rd adjustment programme (2015-2018)



Source: Authors' own elaboration

Based on this information, **Error! Reference source not found.** illustrates the intervention logic guiding the third Greek adjustment programme.

Figure 15. Intervention logic: 3rd adjustment programme (2015-2018)



Source: Authors' own elaboration

4 Analysis

This section is composed of five different subsections, focusing on each of the five questions under analysis indicated in the terms of reference. Following the methodology described in Annex 2, each question is addressed using a combination of qualitative and quantitative methods.

One general caveat applies to this section, and possibly to any assessment of the Greek adjustment programmes. The design, implementation and outcomes of the programmes are the result of a complex mix of economic and political forces and events, at both national and EU levels. This makes it difficult to disentangle causality relations in a clear-cut fashion.

4.1 Question 1: Appropriateness of DSA in the programme – methodology and hypothesis[14]

Identifying a suitable approach to DSA is a complex task. Determining whether the stock of a government's debt is sustainable requires producing projections of fiscal, macroeconomic and financial variables for many years into the future. Such projections are sensitive to assumptions, which in turn entail a significant degree of judgement. Methodologically, sensitivity scenarios are usually built to account for the degree of the judgement component of the assumptions, but scenarios do not lessen the importance of the latter.

A second complication of any DSA is the distinction between liquidity and sustainability. This is particularly relevant in the context of an economic or financial crisis, like in the case of Greece. In principle, sustainability means that the debt-to-GDP ratio should reach an acceptable level without requiring unrealistic primary surpluses. Regarding the latter, there is some convergence on the view that a primary surplus of 3 % of GDP, sustained over a long period, seems to be the maximum effort one can expect.[15] In the case of the first Greek adjustment programme, the DSA was based on a larger fiscal adjustment, which was essentially justified by the unprecedented size of the fiscal deficit. Moreover, defaults among advanced economies are historically rare events. When the debt restructuring happened in 2012, Greece was the first advanced economy in over 70 years to default.

A third complication, specific to the case of Greece, was that economic, financial and political interlinkages are very strong within the euro area. The Greek crisis started in the context of a destructive global financial crisis, where financing conditions were difficult for many countries and the global economy was undergoing the largest recession since the Great Depression. Political pressure to deliver fast results and specific problems in the functioning of the Greek economy (from limited economic openness and a heavy reliance on internal demand to public administration's severe struggles with its capacity to implement reforms) are likely to have mutually reinforced each other in the direction of making the programmes (at least the first two) too ambitious, or even unrealistic, for Greece.

The first two Greek programmes are widely considered a failure. Such a judgment is supported by the outcome of consultations with stakeholders, who were directly involved in the process, as well as by the evidence that sustained market access, which was a key

[14] This section substantially relies on Alcidi and Gros (2018) combined with insights from interviews with the IMF, ESM and European Commission.
[15] See Alcidi and Gros (2010) among others.

objective of each of the two programme, could not be restored. Yet, in most aspects they reflect the standard IMF approach that has been applied rather successfully in hundreds of cases. Another country, Latvia, that needed support just before Greece, managed to maintain a tight peg to the euro and was able to adjust without a devaluation. At the time, there seemed to be little reason to doubt the standard IMF approach.[16] The EU-led macroeconomic adjustment programmes outside the euro area (e.g. Latvia) seem to have been much stricter, but the adjustment was quicker and followed by a stronger rebound. At the trough of Latvia's recession, the programme was also off track and failure seemed imminent, but it turned out that the sharper-than-planned adjustment cleared the way for a solid recovery.[17] The case of Portugal, which emerged shortly after Greece, provides another benchmark, as the country seemed to face similar problems at the time.

Box 1. The IMF approach to DSA

The IMF DSA is centred on the concept of fiscal policy sustainability. Fiscal policy is unsustainable if the government will be unable to service its debt. This can happen under two broad sets of conditions. The first is a combination of no-policy-change and a current primary balance that is not able to stabilise the debt-to-GDP ratio. The second is when the required adjustment of the primary balance to stabilise the debt-to-GDP ratio is politically or economically not feasible.

In this assessment, the level of public debt matters a great deal. The higher the level of the debt, the higher the probability of unsustainability, as higher debt requires a larger primary surplus for a longer time and is usually associated with higher interest rates. The risk of rollover also increases with the debt's size and, beyond certain levels, long-term economic growth is negatively associated with debt.

Accordingly, the DSA begins with the trajectory of public debt relative to GDP, based on assumptions about (i) economic growth, (ii) interest rate on public debt and (iii) fiscal risks. Such assumptions must be realistic and should take into account that changes in interest rates, which can be induced by changes in market sentiment and lower-than-expected growth rates, can result in less favourable dynamics, requiring higher primary surpluses.

A pattern for debt-to-GDP ratio is generated for a time horizon of five years[18] with sensitivity analysis based on alternative scenarios. In the baseline, assumptions about:

-country GDP growth are taken from the projections included in the IMF World Economic Outlook (WEO);

-interest rates are derived from both market data and the literature;

-primary balance are based on the no-policy-change hypothesis, relative to the current stance.

The DSA exercise consists in verifying that the combination of realistic hypotheses stabilises the debt-to-GDP path.

The realism of the underlying hypotheses is typically assessed against the country's past record of fiscal adjustment and historical evidence. For instance, too large and very persistent adjustments are politically not credible. They could also not be economically feasible if they harm growth. Last, most advanced economies are characterised by a negative growth-interest rate differential, which implies a negative loop for debt and the need for systematic primary surpluses for debt stabilisation.

Alternative scenarios are generated assuming different hypotheses on policy behaviour and on the key variables indicated above. Bound tests are meant to focus on tail risks and consist of shocking one variable at a time and, in specific cases, a combination of them. Both the bound tests and the alternative scenarios are quite mechanistic. Stochastic simulations are meant to account for the uncertainty surrounding the baseline scenario and point to fiscal risks. This is made possible by the fact that in the simulations, shocks have feedback effects on macro variables and linkages among variables are taken into consideration.

[16] It emerged from interviews that, in reality, the IMF was doubtful that Latvia could make it without a currency devaluation. However, keeping the peg and the facing the cost it implied was a firm choice of the Latvian government.

[17] See Alcidi and Gros (2013), among others.

[18] As will be explained later in more detail, five years is the usual timeline of IMF lending, which matches the forecasts data published by the IMF, i.e. the WEO.

IMF DSA always starts with the standard exercise described in Box 1. This becomes more detailed and elaborate in the case of countries with 'higher scrutiny' and those requesting financial support. As already mentioned above, the IMF states that, 'In line with the time horizon of the WEO, assessments of debt sustainability should generally be based on a 5-year projection horizon'.[19]

There are two reasons for this choice: First, as noted above, an assessment of debt sustainability is based on projections for debt burden indicators. The uncertainty associated with these projections grows significantly with the projections' horizon. The second is that repayments to the Fund start between 3¼ and 4½ years after the start of a programme. Prospects for the IMF to be repaid would be undermined if debt is not sustainable and the country is not able to access markets to repay the loans.

The IMF grants exceptions to this general rule, which need to be justified and require the support of IMF management. Departures from the standard five-year projection horizon could be considered if a five-year horizon may not capture relevant risks to debt sustainability, such as long-term spending pressures due to an aging population, growing debt service and persistent negative output gaps. In cases of prolonged fiscal adjustment where debt burden indicators remain high during the five-year period, teams could propose to present a complementary analysis based on a longer timeframe.[20]

4.1.1 Inside the DSA methodology: A technical comparison[21]

The approach to the DSA follows a simple, basic accounting relationship linking the debt level to deficits, growth and interest rates costs. However, as any exercise which requires projections into the future, the final outcome depends on some key assumptions about the driving variables. Typically, the sensitivity to the assumption increases with the time horizon.

The European Commission standard DSA is part of the EU surveillance mechanism of fiscal coordination. Until the Greek crisis, it was never applied in the context of macroeconomic adjustment programmes and financial assistance. But this changed.

In the summer of 2017, both the Commission and the IMF published their respective DSAs for Greece (required for the finalisation of the second review). The analyses incorporate estimates and assumptions as well as political agreements on the primary surplus targets and on the short-term measures adopted to re-profile Greece's debt vis-à-vis the EFSF/ESM. Nevertheless, the two DSAs differed substantially.

A European Parliament study (2017)[22] compares the GDP growth and primary surplus projections of the IMF and the European Commission of the 2017 Review and finds that assumptions about future growth are somewhat similar, but the IMF assumes a lower long-term growth rate and a lower primary surplus. In the end, the IMF baseline projection for the Greek debt-to-GDP ratio clearly appears on an explosive pattern, whereas according to the projections of the European Commission, debt-to-GDP is expected to fall under all scenarios.[23] An additional, and less visible, element that contributes to explain such substantial difference in debt patterns and the overall judgement about the sustainability of the Greek debt is a very specific assumption on the debt-interest rate feedback loop.

[19] IMF (2013).
[20] IMF (2013).
[21] This section is based on Alcidi and Gros (2018).
[22] See page 12, http://www.europarl.europa.eu/RegData/etudes/IDAN/2017/602088/IPOL_IDA(2017)602088_EN.pdf
[23] See European Commission (2017c) Table p. 26 and IMF (2017b) p. 21, *Greece: GG Debt and GFN-- Baseline, 2014-2080*.

In the DSA framework, other than GDP growth and primary balance, the hypothesis on the interest rate is crucial. According to the IMF report, Greece was assumed to access markets by the end of the programme at an initial rate of 6 %, reflecting a prolonged absence from markets, a weak track record on delivering fiscal surpluses and a substantial debt overhang. This rate is consistent with a risk-free rate of 1-1½ % in 2018 and a risk premium of 450-500 basis points. As to its evolution over time, the rate is expected to fall/rise by 4 basis points for every one percentage point decline/increase in debt-to-GDP ratio, in line with the literature (Laubach 2009, Ardagna et al. 2007, Engen and Hubbard 2004), fluctuating between a ceiling of 6 % (to avoid non-linearity and reflect the likelihood of loss of market access at high levels of debt/interest rates) and a floor of 4½ % (consistent with a small long-run risk-free premium of 75 basis points).

In contrast, in the Commission's projections, market rates (modelled at the expected risk-free rate plus a risk premium) are expected to reach 5.1 % in 2019, to increase to 5.5 % in 2021—in line with the projected increase in the risk-free rate—and to slowly converge to 4.3 % by 2060. The average market refinancing rate after the end of the programme averages 4.9 % in the projections.

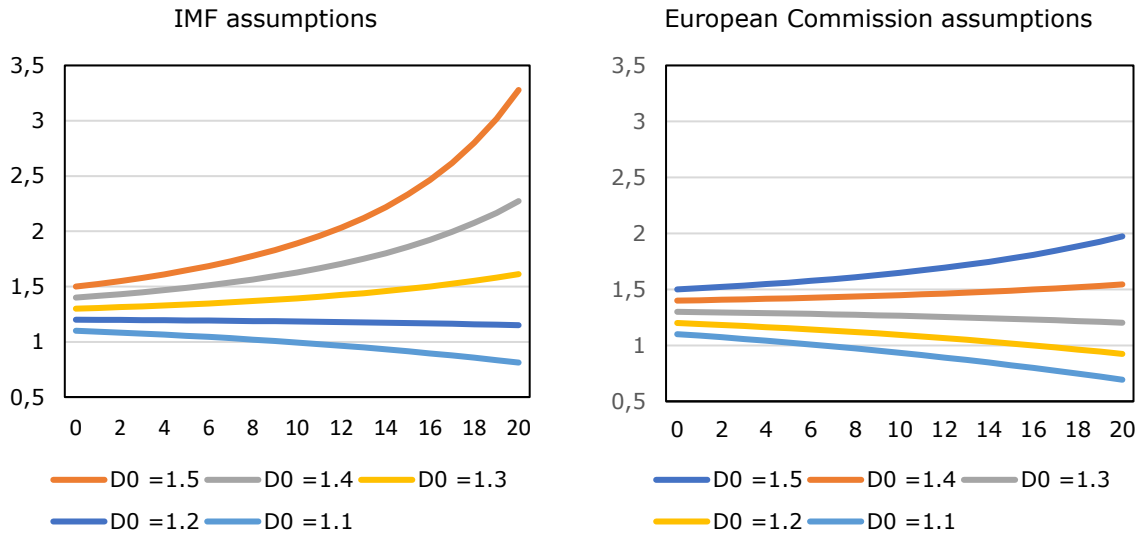
In both procedures, the interest rate on government bonds is the sum of a risk-free rate and a risk premium. For most IMF programmes, foreign debt is mostly in USD and the risk-free rate is thus given by the US Treasury rate. In the euro area, the risk-free rate is usually taken to be the rate on German government bonds. The calculation of the risk premium is more complex. The IMF assumes that the risk premium (on new government bonds, presumably for the average maturity of five years) falls by 4 basis points for every 1 % reduction in the debt-to-GDP ratio, but with a floor on the risk premium. The IMF (2017) adds that, equivalently, it could consider the average euro area rate of France and Germany since 1999 and add a risk premium of 4 basis points for increases of the debt ratio above 60 %. The Commission uses a similar mechanism, but with slightly different parameters: the risk premium increases by 3 basis points for every 1 % increase in the debt-to-GDP ratio above 60 %.

However, in the case of Greece, both the Commission and the IMF end up using a floor for the interest rate, of above 5 % and 4.5 % respectively. The IMF explicitly states that this is because in the long run, the risk-free rate is assumed to return to its historical average of between 3.5-4.0 %. The Commission states that the floor for interest rates on Greek government bonds will be above 5 % (for most scenarios).

For all cases involving USD-denominated debt (basically all IMF interventions), the assumption of a return to the past average seems quite appropriate, since both long-term (10 years) and very long-term US interest rates (e.g. 30 years Treasuries) are close to the historical average.

Such an assumption of (market) risk-free rates returning to their historical average seems difficult to reconcile with present long-term interest rates for German government bonds, which remain below 1.5 %, even for maturities as long as 30 years, thus indicating that market participants do not expect rates to increase in the future. This concrete case points to a fundamental issue with DSAs, namely the assumption concerning (risk-free) interest rates and whether this should be based on available market rates or whether one should follow the practice of assuming a return to past averages.

Figure 16. Dynamic evolution of debt-to-GDP ratio from different starting levels



Source: Alcidi and Gros (2018)

Note: assuming a 3 % primary surplus, a risk-free rate equal to growth rate and a risk premium increasing with 4 basis points for every percentage point increase in the debt ratio above 60 % of GDP (IMF assumption, left-hand panel) or increasing by 3 basis points for every percentage point increase in debt ratio above 60 % of GDP (Commission assumption, left-hand panel).

Figure 16 provides an illustration of the different patterns associated with the two hypotheses on feedback loops, all other things being equal. It exemplifies how minor differences in the parameters that govern the relation between debt level and the interest rate, whose setting entails a high degree of judgement, lead to very different end results for the Commission and the IMF, although both assume that the nominal interest rate on market financing will be around 5 %.

In practice, neither the Commission nor the IMF use a static DSA and instead produce stochastic scenarios. However, it remains true that small differences can have a large impact.

4.1.1.1 Risk premium and official-sector lending

The assumption that the risk premium and thus (market) interest rate on public debt depends on the debt-to-GEP ratio introduces an important, self-reinforcing mechanism which can easily lead to widely divergent results, even if the initial conditions change only marginally.

The reason for this is that at a higher debt level, the interest rate cost of debt will be higher not only because there is more debt to service, but also because the cost of each unit of debt (i.e. the interest rate) will increase. An example can illustrate this mechanism.

Following the IMF assumption that the interest is given by the riskless rate plus a risk premium, which increases by 4 basis points for every one percentage point increase in the debt ratio above 60 % of GDP, a country with a debt-to-GDP ratio of 180 % (like Greece today) would be 4.8 percentage points above the riskless rate (e.g. 10-year German government bonds). In reality, this is not the case today for Greece, because most of its debt is not at market rates.

Denoting the part of the total debt financed at (long-term) fixed rates by θ, the interest rate charged by the ESM is i_{ESM}. Assuming the ESM rate is equal to the riskless rate yields:

$$interest\ expense =$$

$$b\{\theta i_{ESM} + (1-\theta)[i_{ESM} + \alpha(b-60)]\} = bi_{ESM} + \alpha(1-\theta)(b^2 - 60b)$$

This implies that the marginal cost of debt is much lower and much less affected by the debt level.

$$\frac{\partial(interest\ expense)}{\partial(b)}$$

$$= i_{ESM} + \alpha(1-\theta)(2b-60)$$

With over 80 % of all Greek debt owed to the ESM, the feedback factor would thus be attenuated by a factor of one fifth, implying that the marginal cost of debt might only be 2.4 %.

This argument is in line with the theoretical model of Ari et al. (2018), who show that a country with a very high share of its public debt due to official creditors might have a lower overall cost of debt.

If one were to reproduce Figure 16 (above) for only 20 % of total Greek debt, hence debt below 60 % of GDP, no feedback loop would be at work.

The general conclusion that emerges is that when most debt is at fixed low long-term rates, the formal DSA approach has to be modified.

The DSA of the IMF is designed to find out whether a country could finance itself on the market after a few years and with only limited medium-term financing, at rates which already incorporate a significant premium. Repayment of the loan is the primary objective. The first EU support package for Greece was based on a similar logic. Over time, however, the European DSA evolved towards which financing package (in terms of size, duration and interest rate) would render the debt burden sustainable in the very long run. One may read this as placing priority on ensuring future sustainability rather than on the quick repayment of loans.

4.1.1.2 The role of constituencies and judgement in the DSA

A key question when deciding to provide emergency support to a country facing a sovereign debt crisis is whether the debt is unsustainable. Under normal conditions, unless the DSA leads to a positive assessment, the IMF does not provide loans. For the ESM/EU, a negative assessment of the debt sustainability of a requesting country, that is part of the monetary union, is likely to make the choice more complex, but does not necessarily imply a rejection. The ESM Treaty[24] does not explicitly require a positive DSA as a condition for agreeing to financial support. Article 13(b) of the Treaty states that an assessment has to be performed and that the Board of Governors takes the decision.

A decision not to provide financial support to a country which is losing access to financial markets implies that the country will default and a haircut will be imposed on private investors. While difficult to quantify *ex ante*, the costs of default are typically high and, in addition to monetary losses, intangible and indirect costs can be very elevated. A haircut on nominal debt can have a very negative impact on the national financial system. Banks and insurance companies, if exposed to the national government, are likely to need recapitalisation; and even after recapitalisation they might not work as well as before. A dysfunctional financial system and weaker investment demand are likely to impair growth—at least in the short and medium run—thus increasing uncertainty about growth, which is one crucial variable for future debt sustainability. Moreover, rating agencies are

[24] https://www.esm.europa.eu/sites/default/files/20150203_-_esm_treaty_-_en.pdf

likely to downgrade the country's rating to 'default' or 'selective default'. Given that most corporates and, especially, banks are subject to the rating ceiling of the government (reflecting expectations that a government default usually goes hand in hand with a steep fall in GDP), also their rating would be affected. In general, (external) financing cost of the corporate sector will increase. In short, imposing a haircut on private creditors massively increases uncertainty about key elements of future growth and stability.

From a practical point of view, the IMF can base its decision on the experience of almost 200 countries over 50 years, with dozens of DSAs and programmes. In contrast, the EU crisis management system was newly created at the height of the financial crisis. When the Greek crisis erupted, the EU had no experience with a sovereign debt crisis of a euro area Member State nor with the decision to grant large-scale financial assistance. However, the lack of a pre-existing and predefined modus operandi offered enough flexibility to tailor support to the needs of the case.

To better understand the difference between the IMF and the EU approach, we propose an account of the potential consequences of the choice to grant or not grant financial support, taken under uncertainty and based on the outcome of a DSA. Table 1 illustrates the four possible cases.

The most straightforward case is a correct positive DSA: the DSA finds that debt is sustainable, support is granted and the programme succeeds, as the debt was rightly assessed to be sustainable. The country regains market access at rates which allow it to service its debt in full.

At first sight, the opposite case seems clear as well: the DSA rightly assesses that debt is not sustainable. In this case, a sufficiently large restructuring of the debt should bring it on a sustainable path. As argued above, in this case, the cost of the default could be very high but also appears inevitable.

The other two cases are more complex, as they are associated with errors. First, let us assume that the DSA is negative and wrongly suggests that debt is unsustainable. In practice, this case will never be observed, as support will not be granted and default will happen, even if the country's debt was sustainable. The event would entail a very large economic cost for the country concerned, as what is possibly a liquidity problem turns into default. The last case is one in which the DSA is positive and support is granted while the debt was unsustainable. In practice, it is likely that the programme goes off track and losses materialise for the lender(s).

Table 1. **Ex ante *and* ex post *debt sustainability***

Ex post / *Ex ante*	Debt not sustainable	Debt sustainable
Negative DSA	Large debt restructuring, costly but inevitable.	Cannot be observed. Very large cost for the concerned country, which could have been avoided. *Equivalent to rejecting a true hypothesis of sustainability – Type I error*
Positive DSA	Support granted, but programme might go astray with potential losses for the lender. *Equivalent to accepting a false hypothesis of sustainability – Type II error*	Successful support, without default.

Source: Based on Alcidi and Gros (2018)

Note: For the definition of the error type, we assume that the null hypothesis is the one of sustainable debt.

The purpose of this simple exercise is to highlight that the judgement about the relative weight of Type I and Type II errors is key when deciding whether to grant financial support.

As a matter of fact, this judgement is driven by the interests and (political) preferences of the constituencies represented by who is taking the decision. The IMF and ESM/European Commission represent different constituencies and have different perspectives. This could lead to different judgements.

Within the euro area, economic, financial and political interlinkages are very strong; much stronger than at the global level. In addition, the EU's constituency is much smaller than that of the IMF. The larger and more dispersed constituency of the IMF implies that potential losses generated by a default tend to be negligible for each IMF member. They are certainly much smaller than for euro area Member States. The tight linkages and potentially large spillover effect within Europe may also mean that financial conditions attached to the ESM programme tend to be more flexible than those of the IMF, and are even designed to affect the sustainability pattern. Such an approach would be at odds with the IMF's role as global lender and with its 50-year track record.

As a general conclusion, differences in DSA outcomes may be driven by details in design and methodology, which overall remain very similar across institutions. In reality, a bigger difference may be driven by political instead of technical considerations, which reflect the perspective of the constituency whose interests are represented by each institution.

4.1.2 From stock to flows: from DSA to GFNs

In the course of the three programmes, the object of analysis of the government's debt sustainability slowly shifted from stock to flows. While the DSA described above remained the reference, the GFNs analysis gained increased attention as a complement to emphasise the flow dimension of debt sustainability.

GFNs are used as an indicator of vulnerability in regular surveillance exercises and measure the amount of debt a government needs to refinance in the market in a given year. They are particularly important in turbulent times, when changes in market sentiment and higher interest rates can worsen liquidity conditions and even affect sustainability.

In the case of Greece, the focus on GFN was seen as a helpful benchmark not least because debt relief measures (in 2011 and then in 2017) came primarily as payment deferrals and maturity extensions, instead of nominal haircuts. The monitoring and the analysis of the stock of debt alone would therefore have given an incomplete picture of sustainability.

Technically, the GFNs in a given year are simply the sum of the public debt falling due and the current deficit. However, for countries with a large debt they are only marginally determined by the budget balance in the long run, and are mostly driven by the interplay between the debt-to-GDP ratio and the average maturity of public debt. In practice, small surpluses are unlikely to significantly reduce GFNs because the amounts of a large debt that need to be refinanced are usually an order of magnitude larger than any feasible surplus. Similarly, in the short term, small deficits are unlikely to substantially increase GFNs. As a rule of thumb, the refinancing needs as a percentage of GDP are determined simply by the debt-to-GDP ratio divided by the average maturity of public debt.[25] There seems to be some consensus that a GFN above 20 % is a source of vulnerability. In the IMF guidelines, a GFN exceeding 20 % puts the country in the category of 'higher scrutiny'.

The GFN analysis of the IMF prepared in 2015 explicitly states that '[b]orrowing from the market is assumed at an average maturity of 5 years …'. An implication of such an

[25] This is a rough approximation, since very short-term debt has to be reissued more than once per year and is usually excluded from haircuts anyway. See Gabriele et al. (2017) for a precise description of the formula and variables.

assumption is that a GFN of less than 25 % of GDP can only be reached with a debt ratio below 125 % of GDP.

The Commission seems to have used a similar assumption, since it is indicated that in the very long run (when ESM financing has been fully replaced by market financing), a debt ratio of close to 100 % of GDP would entail a GFN of about 20 % of GDP.

For countries under a programme, the maturity of financial support can heavily influence GFNs in the short to medium run. The Greek experience shows extreme examples of this when comparing the first and third programme. The IMF credits under the first programme were given at much higher rates than the risk-free rates[26] and, given that they have to be repaid quickly, repayments to the IMF can contribute significantly to GFNs within a decade. The financing conditions agreed on (and revised) under the EFSF/ESM had exceptionally long maturity (on average over 30 years) and a fixed, very low interest rate. Over time, it became evident that when the level of debt is very high, a reduction of the GFNs to acceptable levels requires very long maturities.

In practice, international lending under IMF assistance is limited in size (typically, debt is rather small for EMEs and developing countries) and its standard terms imply short maturities.

By contrast, the ESM does not have any formal limit on the duration of loans and, given that Greece represented its first experience, did not have to comply with standards set by practice. The ESM financing terms contributed to improving both the GFNs (flows) and debt (stock) sustainability by making the path of the debt level less dependent on future interest rates.

4.2 Question 2: Appropriateness of debt restructuring – time, delivery, scope, link to policy conditionality

In Deauville in October 2010, France and Germany agreed that preparatory work on the ESM would include the requirement of an adequate participation of private creditors. This was largely interpreted as an agreement that sovereign bailouts had to entail PSI, i.e. losses would have to be imposed on private creditors.

In the course of 2011, it became clear that the Greek adjustment programme was not on track. The Greek government had been unable to reduce the deficit as promised and the GDP was falling at the rate of 8 % per year. Additional financial support would be necessary.

In June 2011, a Eurogroup statement,[27] which specified that '*Greece [was] unlikely to regain private market access by early 2012*', opened the way to a new programme focused on more fiscal consolidation and privatisation. Furthermore, the new programme had to be '*financed through both official and private sources [with] voluntary private sector involvement in the form of informal and voluntary roll-overs of existing Greek debt at maturity for a substantial reduction of the required year-by-year funding within the programme, while avoiding a selective default for Greece*'.

These events define the political and macroeconomic background in which the restructuring of Greek debt was designed.

[26] Under the 2010 IMF financing conditions, '[t]he loans will have the same maturities as the Fund purchases, and will carry floating rate interest rates (3-month Euribor) plus a spread of 3 percentage points, rising to 4 percentage points for amounts outstanding beyond three years. Each drawing is subject to a one-off service charge of 0.5 percent' (IMF 2010).
[27] https://ec.europa.eu/commission/presscorner/detail/en/MEMO_11_426

4.2.1 Private sector involvement

The agreement on the second adjustment programme included PSI to improve the sustainability of Greece's debt. This happened in the spring of 2012, after almost one year of negotiation and the failure of a first proposal.

Following the official agreement concluded on March 9, 2012, Greece announced that the holders of 82.5 % of the EUR 177.3 billion in sovereign bonds issued under domestic law had accepted the exchange offer and consent solicitation. By the end of April, after the last foreign law bonds were settled, Greece had achieved a total participation of EUR 199.2 billion, or 96.9 % of the total 205.6 billion of eligible principal. By using a combination of new legal techniques and large cash incentives, the face value of Greece's debt declined by about EUR 107 billion, or 52 % of the eligible debt[28] (see Box 1 for more details).

Box 2*: The Greek debt restructuring: form and content

On the initiative of the Institute of International Finance and some of the larger European banks, private bondholders established a Private Creditor-Investor Committee which in turn appointed a Steering Committee. The Steering Committee held many discussions with Greece and its advisers, and with the EFSF, the ECB, the IMF and the EU Commission. It helped shape the nature of the offer and in particular the structure of the new Greek Government Bonds.

At the moment of the exchange, there were 117 eligible securities with a total nominal amount of EUR 205.6 billion (of which EUR 9.8 billion in 36 securities was guaranteed). Of these, EUR 177.3 billion consisted of Greek-law directly issued GGBs, EUR 6.7 billion was Greek-law guaranteed, EUR 19.9 billion was English-law directly issued and guaranteed, and EUR 1.7 billion was governed by Italian, Swiss or Japanese law.

The total Greek debt at the end of 2011 included bonds held by the ECB (EUR 42.7 billion), national central banks (EUR 13.5 billion) and the EIB (EUR 315 million). This additional EUR 56.51 billion was not included in the offer, and Greece swapped these bonds for new ones with identical characteristics apart from their issue date.

PSI was an exchange of old GGBs for new GGBs. Investors accepting the Greek offer of 21 February 2012 would receive for every EUR 100 of their old GGBs:

-EUR 15 in short-term EFSF securities (in essence, cash);
-new GGBs of a total face value of EUR 31.5, with maturities from 2023 to 2042 and escalating annual coupons ranging from 2 % to 4.3 %;
-a detachable GDP-linked security that could provide an extra payment stream of up to 1 % of the face value of the outstanding new GGBs if GDP were to exceed the IMF's growth projections for Greece; and
-payment of all accrued interest under the old GGBs, in the form of six-month EFSF securities.

This implied that Greece offered a substantial amount of near-cash (the 15 % and the accrued interest) and moderately structured GDP warrants to make the offer attractive to investors, who would lose 53.5 % of their nominal principal amount and closer to 70 % in net present value (NPV) terms. In addition, an array of more attractive legal terms for the new GGBs was offered. These were now all governed by English law, and they were subject to a Co-Financing Agreement with the EFSF. In essence, this arrangement ensured that Greece could not default on the new GGBs without at the same time defaulting on the EFSF loan.

*Based on Global Restructuring Review – Overview: Restructuring of Greek Sovereign Debt

In practice, at the end of 2012, public debt had declined to EUR 305 billion (160 % of GDP) from EUR 356 billion (172 % of GDP) in 2011. The decline was limited in absolute terms and even less as a percentage of GDP. Notwithstanding the EUR 106 billion reduction granted by a large haircut, the overall small impact is explained by a number of factors. Besides the exclusion of non-eligible assets and the incentives offered to bondholders described in Box 1, the losses of domestic banks—which represented around 40 % of the

[28] See Zettelmeyer et al. (2015).

bondholders (or 24 % of total public debt)—had to be compensated. This was done by increasing government borrowing. In addition, nominal GDP declined by almost 8 % in 2012.

Two recurrent questions about PSI ask whether it came too late and whether it was too small.

4.2.1.1 Did PSI come too late?

Over the years, several commentators and stakeholders involved in the process argued that PSI would have made a major difference if it had come as early as 2010. At that time, debt-to-GDP was 146 % (EUR 330 billion), several percentage points lower than when PSI started, but possibly as unsustainable as in 2012. All other things being equal, this could have resulted in a fall in the debt-to-GDP ratio of 15 % of the then GDP (simply applying a debt reduction of EUR 51 billion that materialized with PSI in 2012, compared to the EUR 106 billion reduction granted by the haircut). The lower stock of debt in 2010 should have made the subsequent fiscal adjustment easier and in turn lessened the need for further public support. Moreover, an earlier bail-in of private creditors would have saved EU taxpayer money used in the bailout.

However, one should remember the situation of 2010 when formulating such considerations. First, the memory of the collapse of Lehman Brothers was still fresh at this time, and the impact of the global financial crisis was still materialising. Second, before May 2020, the euro area had no safety net to prevent contagion and deal with a sovereign debt crisis. Third, as already mentioned in Section 2, the dominant view on sovereign default back then was embedded in an influential IMF staff position note, in which sovereign default in advanced economies was qualified as unnecessary, undesirable and unlikely. The authors argue that, in 2010, while the fiscal fundamentals looked challenging in the ten top advanced economies, default risk was excessive. They also show that the needed fiscal adjustments had been attained before and that default would not reduce the need for adjustment by much. The main reason being that primary deficits, not interest payments, is the main the problem in advanced economies. Last but not least, they maintain that the political and economic costs stemming from a default would not be lower than those associated with a strategy based solely on fiscal adjustment.

Looking back, while a bail-in in 2010 may now seem an obvious option, at that moment it was politically unfeasible.

4.2.1.2 Was PSI too small in size?

In the end, participation in Greece's debt exchange offer was very high. Out of a total of EUR 205.6 billion in bonds eligible for the exchange offer, approximately EUR 197 billion, or 95.7 %, was exchanged.[29] Historically, Greek PSI was exceptional in size, exceeding the largest sovereign credit event in modern history—Russia's default in 1918, equivalent to just under 100 billion in 2011 euros. It was also exceptional in terms of losses for bondholders compared to previous debt restructurings. Zettelmeyer et al. (2013) measure the haircut using the approach of Cruces and Trebesch (2013), who compare all debt restructuring cases involving private creditors since 1975, and find a 64.6 % haircut in Greece. This comes only after Iraq in 2006 (91 %), Argentina in 2005 (76 %) and Serbia and Montenegro in 2004 (71 %).[30]

Therefore, PSI was large by international comparison and, as several experts and stakeholders pointed out, if it had been larger, it would have increased the risk of much

[29] https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-financial-assistance/which-eu-countries-have-received-assistance/financial-assistance-greece_en

[30] See Zettelmeyer et al. (2013).

greater holdouts and litigation. However, for a number of reasons that are explained in detail below, the impact of the haircut on the debt-to-GDP ratio was small.

4.2.2 Official sector involvement

PSI turned out to be a rather complex exercise, and agreeing on it took much longer than originally foreseen. The first PSI proposal in the summer 2011 was discarded, as it appeared unable to deliver. Actual PSI, which started in February 2012, contained a number of measures involving public funding, from both the EFSF and the Greek government, to convince private bondholders to participate but also to avoid market disruptions. These measures helped limit market turbulence but also limited debt reduction in net terms.

While PSI did not include official sector bondholders (see Box 1 for details), the deepening recession in 2012 made it clear that PSI alone would not be sufficient for Greece to meet repayments and that OSI would also be required.

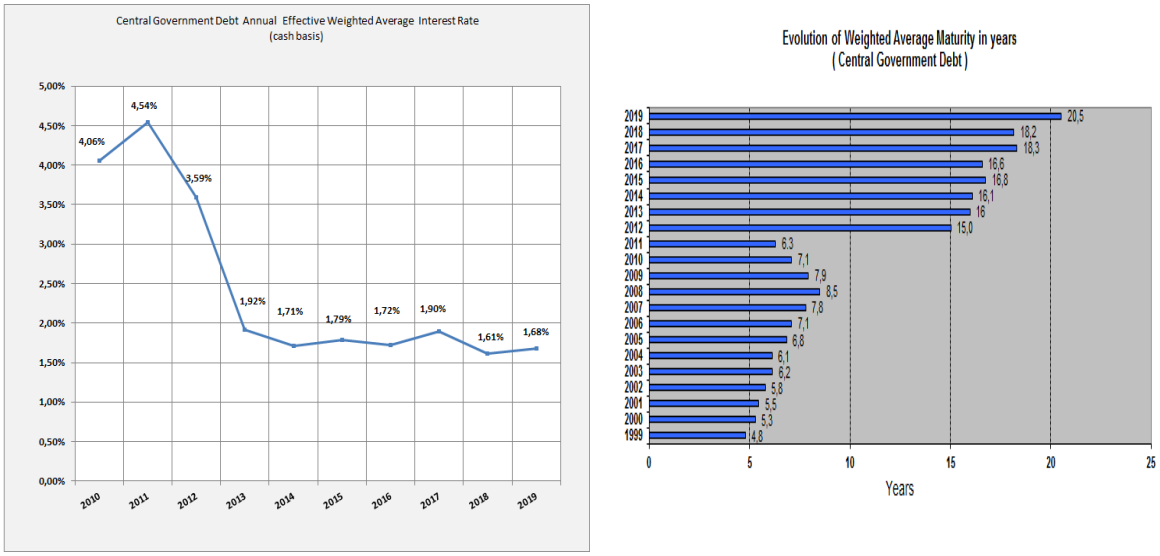
In November 2012, the EU partners agreed to provide debt relief by reducing the net present value (NPV) of their claims while maintaining the position of avoiding nominal direct haircuts, which was considered politically unacceptable. This was made possible by the reduction in interest rates to a fixed 1 % and the lengthening of maturities.

More specifically, the euro area finance ministers and the IMF agreed to:

- lower the interest rate charged to Greece on the loans provided in the context of the GLF by 100 basis points;
- lower the guarantee fee costs paid by Greece on the EFSF loans by 10 basis points;
- extend the maturities of the bilateral and EFSF loans by 15 years and defer Greece's interest payments on EFSF loans by 10 years;
- a commitment by EU countries to transfer to Greece an amount equivalent to the income on the SMP portfolio accruing to their national central bank starting from budget year 2013.

The measures were supposed to reduce Greece's debt to 124 % of GDP by 2020 and hence to save at least 50 % of the debt obligations in terms of NPV.

Figure 17. Evolution of weighted average interest rates and maturity



Source: Public Debt Management Agency of Greece

The measures implied a reduction in interest rates, which in practice became equivalent to those of a government with AAA rating, and an extension of the maturity profile exceeding 20 years on average (see **Figure 17**). This resulted in a significant easing of the debt burden. When considering the second OSI, interest payments fell by half, from EUR 12 billion in 2009 to about EUR 6 billion (equivalent to 3.3 % of GDP) in 2018. As percentage of GDP, this is lower than in countries such as Spain, Portugal and Ireland.

The second OSI was essentially induced by the derailment of the second programme, largely driven by political uncertainty. The situation rapidly deteriorated in 2015 when the Greek government abandoned the programme and called for a referendum. A second Grexit crisis escalated. In the aftermath, the debt-to-GDP ratio increased again and significant additional debt relief became necessary. Given the very limited privately held debt, the political unfeasibility of direct haircuts on official loans and the already very low interest rates, debt relief could only take the form of a dramatic lengthening of the already long maturity profile on official credits.

The IMF considered such conditions as too far from the maximum terms usually applied. According to several stakeholders, the Fund[31] was in fact arguing for a nominal haircut on official EU loans, pointing to the high downside risks of the additional lengthening of maturities.[32] For this reason, the third programme was financed by the ESM without an accompanying IMF arrangement.

The fall in risk-free interest rates (see Figure 18) created an environment where, for the EU lending institutions, the desirability of haircuts on debt face value was lower than ever, while the re-profiling of the debt appeared an acceptable solution to reduce the debt burden on Greece. Hence, from the lender point of view, macroeconomic conditions in 2017 were very different from those in 2012 and even more from those in 2010.

Figure 18. Germany – Long-term government bond yields: 10-year

Source: FRED

[31] The IMF preference for nominal haircut is also explicitly mentioned in Thomsen (2019).
[32] It should be noted that haircuts would not have applied to the IMF loans.

4.3 Question 3: Impact of reform implementation on debt sustainability

Structural reforms have been a constant element of all Greek adjustment programmes, and the emphasis on reforms increased over time. However, the IMF and European Commission reports describe almost all reforms as having been delayed. The only exception is the first review of the first programme, which contains a positive evaluation of the speed at which measures were adopted.

The experiences of those who were part of the process tells us that even when reforms were approved, the implementation process was very gradual and sometimes limited. The main measures that gained momentum in the course of the programme were the labour market reforms. This may be because most measures were legislated at the beginning of the first programme, when it still had (some) support.

The main labour market reforms involved measures that had the objective to (i) decentralise the wage bargaining system, (ii) lower firing costs to relax employment protection legislation for permanent employees, (iii) take the setting of the minimum wage away from the social partners, and iv) increase flexibility and firms' ability to adjust to the decline in economic activity, which was done through simplifying procedures for the conclusion of firm-level agreements that allowed for less favourable remuneration and working conditions than any sectoral/occupational agreement.

Kosma et al. (2017) argue that one effect of such reforms was to make it easier for firms to adjust to the large decline in economic activity during the period 2010-2013. During that period, the unemployment rate increased from 12.7 % to 27.5 %, and the number of unemployed almost doubled, reaching 1.3 million in 2013.

Given the very tough consolidation exercise that the government was undergoing and the lack of a social safety net for the unemployed, it was felt that the reforms amplified the negative social impact of the crisis. This perception may have contributed to a widespread sense of unfairness and to the rejection of the reforms and the programme altogether. Such a negative spin was emphasised by several stakeholders during the scoping interviews.

In practice, one problem was that the reforms which were expected to deliver benefits to consumers—like the opening of closed professions and the opening of goods and services markets—did not materialise, at least not during the adjustment programmes. Wages were cut and bargaining curbed, but the increased competition that should have helped bring prices down did not follow. As several experts pointed put, wages fell much more than prices.[33] In practice, the largest burden of the internal devaluation fell mostly on labour.

The liberalisation of closed professions, privatisation, the improvement of the competitive environment as well as the increase in investment remained rather modest. The major obstacles arose from the fact that rigidity was very extensive at the beginning of the programme. The Task Force for Greece (TFGR) had the objective to accompany and support Greece in its transformation, which required a substantial effort and implied a rather long journey to catch up with the EU average.

Besides the unfavourable starting point the support for such structural reform (e.g. product market reforms, institutional reforms, pensions, privatisation) was very limited or inexistent, and delays and a lack of willingness to implement measures were the rule.

This lack of support can be explained by political economy considerations. The reform process in Greece did not have wide political support from all parties in its parliament—in fact, even the government ministers charged with implementing the reforms often

[33] See also Gros et al. (2014).

expressed their disagreement with them. An example of policy ambivalence was provided by the Minister of Labour, at the time of the first MoU, who confessed her disappointment at the relatively moderate stance adopted by trade union leaders (Dedoussopoulos et al. 2013). Generalised limited political support led to a deficient ownership. In addition, the lack of political will made room for vested interests to lobby for changes in the law, which sometimes disabled some of its features. Last but not least, even when the law was passed and was not changed by vested interests, local bureaucracy often did not want to implement it in practice, because they did not want to lose their positions and benefits.[34]

It was partly to redress such a system that the TFGR was set up in 2011. Its objective was to organise and coordinate technical assistance in order to assist with the implementation of the commitments of the adjustment programme. The assistance supported a series of reforms to be implemented by the Greek government. The major policy areas supported were: The Partnership Agreement on the use of European Structural and Investment Funds, the reform of the central government administration, reforms to promote competition, and reforms to facilitate investment. Over the course of the assistance, Greece increased the rate of absorption of structural funds from 21.86 % in December 2010 to 81.26 % in June 2014 (ranked 17th in the EU in 2010 and 5th in 2014). In other policy areas, reforms progressed, although not at a pace that would have brought Greece to a better position relative to the EU average. Most laws prepared by the TFGR were adopted in mid-2014. In practice, improvements started to materialise only after that. For instance, World Bank data suggest that in 2008, Greece had one of the highest levels of 'inefficient government bureaucracy' in the world. Since 2011, the indicator started to systematically decline. It is only in 2015 that it reached levels comparable to other euro area countries. Similarly, the number of days required to start a business have declined significantly and the indicator is now, several years after the start of the reform process, very close to the EU average.

4.3.1 Privatisation: from an ambitious plan to a poor reality

Privatisation entails reforms which in principle should a have direct impact on debt. A privatisation programme was present in all three economic adjustment programmes (2010, 2012 and 2015) and also constitutes an integral part of the Enhanced Post Programme Surveillance framework that Greece has been under since the expiration of the third economic adjustment programme.

Privatisation had a threefold objective:

- To reduce rents and inefficiencies associated with public monopolies. This is typically very important in countries with high corruption and vested interests.
- To generate receipts for the treasury to reduce debt and hence improve sustainability.
- To reduce risks for the government associated with the management of public companies.

As part of the first adjustment programme in 2010, the Greek government committed to preparing a privatisation plan with the aim to raise at least EUR 1 billion a year during the period 2011-2013. On the basis of projections available at that time, the Greek government debt ratio was expected to peak in 2012 and decline afterwards, with a significant contribution from the privatisation plan. In March 2011, Greece signed a much more ambitious privatisation plan with the aim of collecting EUR 50 billion over the next five years to reduce the debt-to-GDP ratio by about 17 % of the then outstanding debt.

[34] The importance of bureaucracy in implementing the law is very important and becomes more crucial for Greece, as the country is characterised by extensive bureaucratic control.

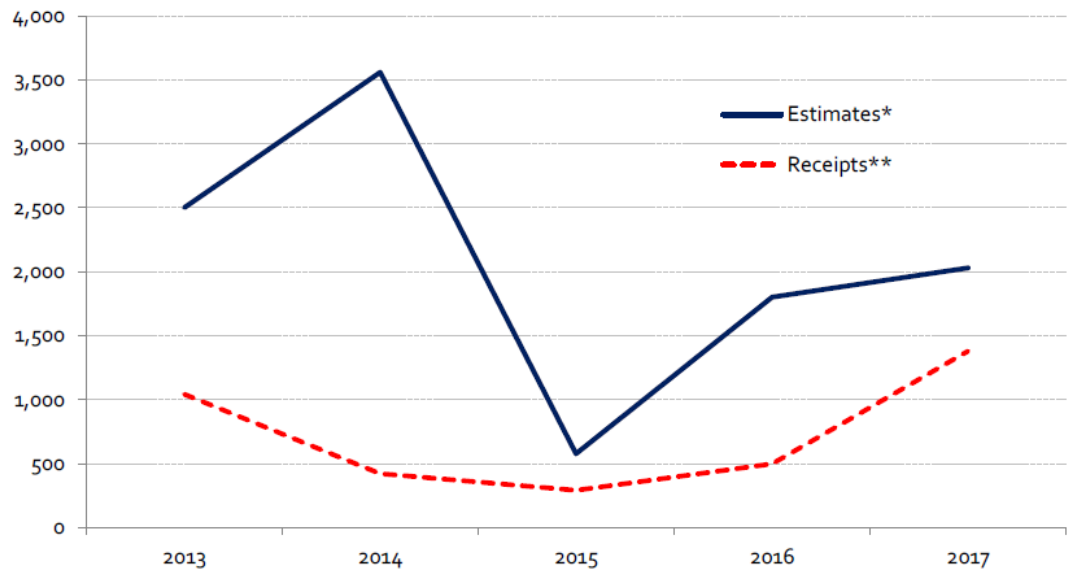
In service of the objective to reduce the country's debt and despite fierce local outcry, the Greek government agreed to sell off a number of state assets by setting up a private fund to which the rights attached to specific assets were transferred. The Hellenic Republic Asset Development Fund (HRADF) was established on 1 July 2011, with the Hellenic Republic as sole shareholder. It had (and still has) the mission to transfer substantial state assets from the state to private investors in Greece and abroad. The scope of the fund's activities covered real estate (e.g. embassies abroad, state-owned hotels), public enterprises (e.g. state lotteries, Public Gas Corporation, Hellenic Post and Hellenic Petroleum) and state infrastructure (e.g. Hellenic Motorways, Public Power Corporation, Athens Water Supply & Sewerage Company, Thessaloniki Water Supply & Sewerage Company, regional airports, railway operators, small ports and marinas)

In exchange for this privatisation plan, Greece could have borrowed from the EFSF at more favourable rates.

In reality, the plan's progress was disappointing. In 2012, only two out of 35 privatisation tenders were completed, mainly due to delays in the required legal and regulatory changes ('Government Pending Actions'). According to Manasse (2014, based on European Commission), only 10 tenders were completed in 2013.

Up to the end of 2017, privatisations completed yielded receipts (see Figure 19) for EUFigure 19. Estimated v realised privatisations revenues (in million EUR)R 5.5 billion (Dimitriadou 2019) This is about 10 % of the 50 billion indicated in 2011.

Figure 19. Estimated v realised privatisations revenues (in million EUR)



Source: Dimitriadou (2019), based on 2013 to 2019 budgets.

** Based on that year's state budget. E.g. the 2013 figure is the estimate that appeared in the 2013 budget.*
*** 2019 Budget data*

Gros (2011) argues that privatisation cannot solve a solvency problem. By selling its assets, a government obtains funds to reduce its debt service burden but also loses future revenues, in the form of either profits or rents (for instance from real estate properties). Unless privatisation is accompanied by a structural reform programme, which improves the value of assets, over time, the two can cancel each other out without a net gain or loss.

In addition, in times of crisis, assets may not be properly priced, as the time pressure can lead to fire sales. The market will heavily discount the value of an unconditional promise of the government to repay a certain nominal amount. The price at which assets can be sold will reflect at least the same discount as the price of existing government bonds, which in 2012 was close to 50 % of the face value for longer-term bonds.

In theory, the impact of privatisation was expected to reach far beyond the revenues from the sale transaction. The main objective of privatisation was to generate revenues for the Greek state to reduce debt, but the programme was also seen as a way of removing monopolies and the associated inefficiencies, and hence of promoting growth as well as reducing fiscal risks associated with the management of public entities.

In practice, three main issues arose around the privatisation process:

- delays were huge due to the lack of public support and above all the opposition, though to different degrees, from almost all governments in power since 2011;
- a trade-off between a quick revenue stream and proper competitive practices; the latter were considered necessary to avoid that public utilities move from a public to a private monopoly;
- some of the sales raised concerns about the procedure and the involvement of foreign, mostly Russian and Chinese, investors in the purchase of infrastructure with a strategic geographical location, such as the EU border with Turkey, and with implications for the EU's energy supply (LNG terminal).

Such issues were not surprising but rather a feature of most privatisation experiences. As reported in Manasse (2014),[35] the empirical literature on privatisation episodes of the 1980s and 1990s is often inconclusive. Results depend on the country, the regulatory and legal framework and the details of the privatisation process. However, Goldstein (2003), who adopts a sophisticated methodology to assess the impact of privatisation in Italy in the 1990s, finds no significant gains from privatisation. In general, the literature looking at cross-country experiences seems to point out that politicians are reluctant to loosen their grip on state companies and transfer control rights. This may offer a possible explanation for the less-than-expected gains from privatisation beyond the impact of solvency.

One general conclusion is that privatisation can be a tool to reduce the role of the state in the economy (particularly when this role is associated with corruption) and boost competition in the longer term, but its capacity as a tool to improve sovereign solvency is far less clear. This was in fact understood in the course of the second adjustment programme, and expectations for the privatisation plan were significantly reviewed.

4.3.2 Pensions as shock absorber

Pension reforms, like privatisation, are the kind of reforms that should, in principle, have a direct positive effect on debt sustainability: privatisation by reducing current debt and pension reforms by reducing future government liabilities. In Greece, both reforms were initially very ambitious.

Since the first programme, pensions appeared excessively high relative to contributions being paid in, and there were too many routes to early retirement. Several rounds of reforms aimed at increasing the retirement age to reach the EU average, preventing early retirement and cutting too high pensions. While it did go through over time, the reform faced fierce opposition from the population.

[35] https://voxeu.org/article/privatisation-and-debt-lessons-greece-s-fiasco

Since 2010, pensions worked as a key redistributive mechanism to stabilise income in response to the crisis. A wave of early retirements allowed a fringe of workers to avoid a direct path to unemployment. A survey by the IME (Small Enterprises' Institute) of the Hellenic Confederation of Professionals, Craftsmen and Merchants (GSEVEE) shows that pensions were the main (not only) source of income for about half of Greek households, and that this proportion increased between 2012 and 2015.

According to Giannitsis and Zografakis (2015), the share of wages decreased from 40 % in 2008 to 28.2 % in 2012 in the lowest-income 50 % of households because of the rise of unemployment.

Because of the absence of a shock absorber, pensions became one. The pension reforms aimed at ensuring long-term sustainability likely contributed to further depressing internal demand and to less support for the adjustment programmes.

4.4 Question 4: Impact of PSI on economy and financial sector

As argued in Section 4.2, PSI was a major event in the history of the Greek adjustment programmes. It has been viewed by experts and policymakers as either a necessity or a recipe for disaster. It is certain that late 2011 and 2012, the time of PSI preparation and implementation, are among the worst years of the Greek crisis, from an economic perspective. What is more difficult to establish is that this negative outcome can be entirely attributed to PSI.

4.4.1 The impacts of PSI on the financial sector

The effect of PSI on the Greek financial sector was twofold: direct, driven by the haircuts to sovereign bonds held by banks, and indirect, driven by the fall in confidence.

4.4.1.1 Capital and liquidity: bank recapitalisation and ELA

Although the Greek crisis was not a banking crisis, the Greek banks' fundamentals and asset quality ratios had been deteriorating substantially since 2009, not least because of falling house prices and exposure to mortgage loans.

When PSI came, it was a dramatic shock. The impact of the restructuring of Greek government bonds implied losses of about EUR 38 billion, about 170 % of their total Core Tier I capital at that time. This means that PSI wiped out the regulatory capital of the main four banks of the system, as well as the (limited) capitalisation of the rest of the banks. The Greek government committed a EUR 50 billion EFSF loan for the recapitalisation of the banking sector. About one half was allocated to offset the expected PSI-related losses, and the other half—equivalent to 5 % of banking system assets—was made available to deal with banks' existing and future credit losses.[36]

By mid-2013, Greece received a total of EUR 48.2 billion in EFSF.

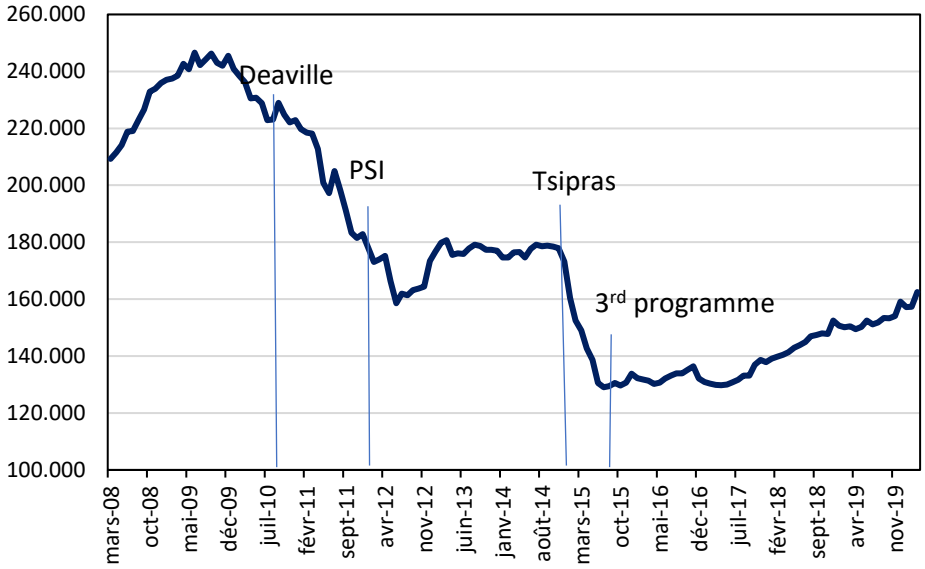
While pension funds and other domestic bondholders suffered large losses in the present value of their claims, the recapitalisation scheme did not contemplate any sort of (bank) creditor bail-in. It is for this reason that a large portion of the debt relief ended up being used to compensate the losses of banks.

Although recapitalisation was a key measure for the Greek banks, it was not sufficient to solve their problems. Banks had already started to face major liquidity problems before recapitalisation. PSI was concomitant with high domestic political uncertainty (double election in May 2012) and fears of a Grexit continued to stimulate large deposit outflows.

[36] IMF (2017a).

Between March 2011, the beginning of talks about PSI, and the conclusion of PSI in June 2012, EUR 60 billion in bank deposits was lost (Figure 20).[37]

Figure 20. Domestic resident deposits (million EUR)



Source: Bank of Greece

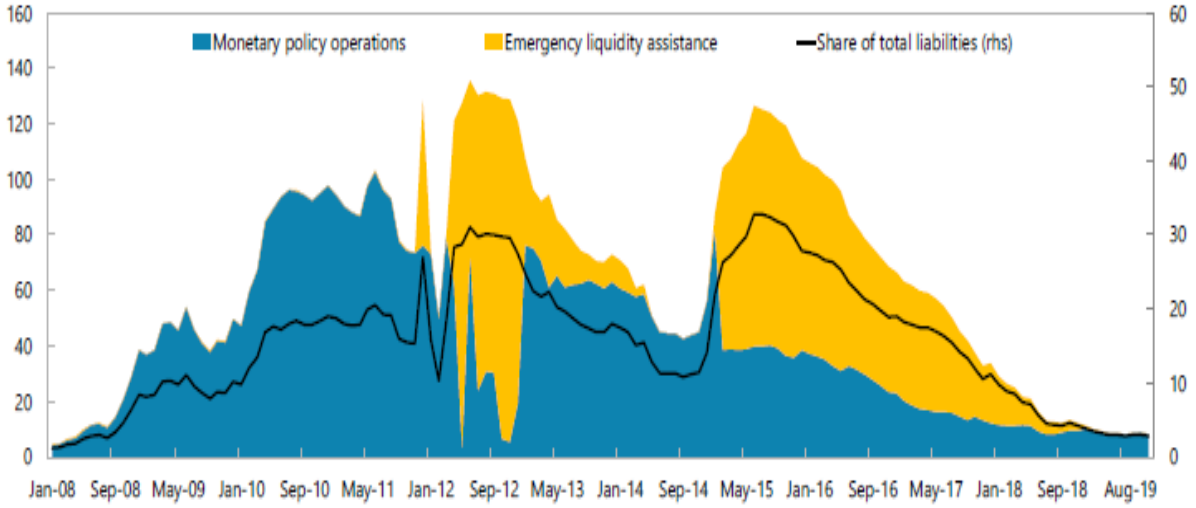
The decline mainly reflected depositor uncertainty regarding the prospects of Greece within the euro area, but also macroeconomic conditions. In addition, Greek banks have at various times been suspended as eligible counterparties to the Eurosystem in refinancing operations. Due to the downgrade in the quality of collateral securities, banks turned to the ELA provided by the Bank of Greece.

According to the Bank of Greece,[38] at the end of 2011, this funding aimed to offset the decreasing value of collateral eligible for monetary policy operations and the large deposit outflows. In February 2012, as consequence of PSI, Greek sovereign debt securities temporarily ceased to be accepted as collateral by the Eurosystem. ELA funding was the main source of bank liquidity in 2012-2013 and in 2015 (until 2017) when capital flow measures were introduced (see Figure 21).

[37] Bank deposits declined by EUR 117 billion (i.e. a drop of -44 %) between September 2009 and December 2015.

[38] Speech by the Governor of Greece (2017), https://www.bankofgreece.gr/en/news-and-media/press-office/news-list/news?announcement=c91acffb-3322-4472-82a0-90d17fc17cce

Figure 21. Composition of banks' funding in billion EUR (LHS), percent (RHS)

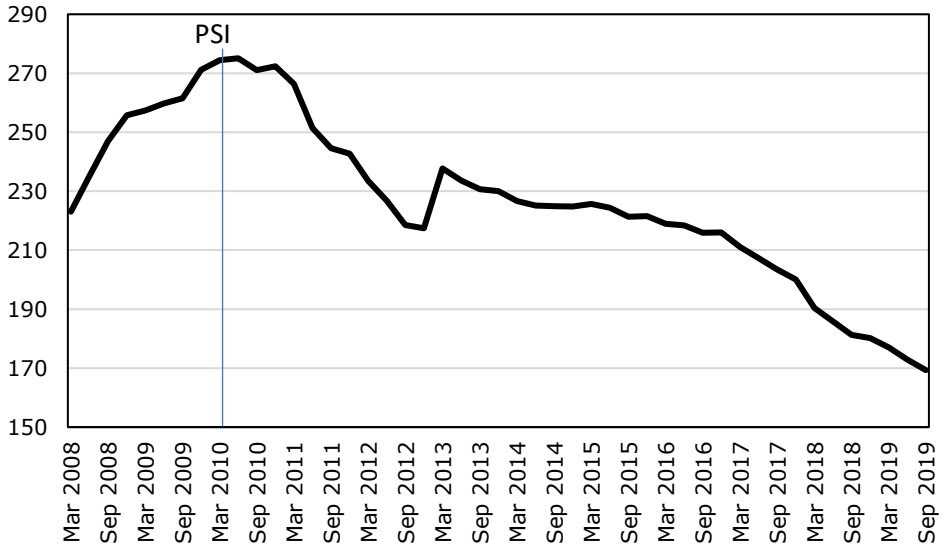


Source: IMF (2019) p. 52, based on Bank of Greece, Haver Analytics and IMF staff calculations

However, ELA is usually more expensive, and banks have to explain how they plan to reduce their recourse to ELA within a reasonably short period. The suspension also implied that Greek banks could not participate in the second long-term refinancing operations (LTRO) and that Greece would not benefit from the asset purchase programmes and in general from non-standard measures that the ECB introduced during the crisis.

From a macroeconomic perspective, the liquidity squeeze reduced the channels for financing the real economy. In response to economic and tight funding conditions and as a consequence of the need to set aside more capital given the rising risks, the banking sector undertook significant deleveraging. During the 18 months around PSI (March 2011 to September 2012), gross loans fell by EUR 50 billion, or 20 % of the total (Figure 22).Figure 22. Gross loans (million EUR) The process of deleveraging continued during the entire duration of the three adjustment programmes.

Figure 22. Gross loans (million EUR)

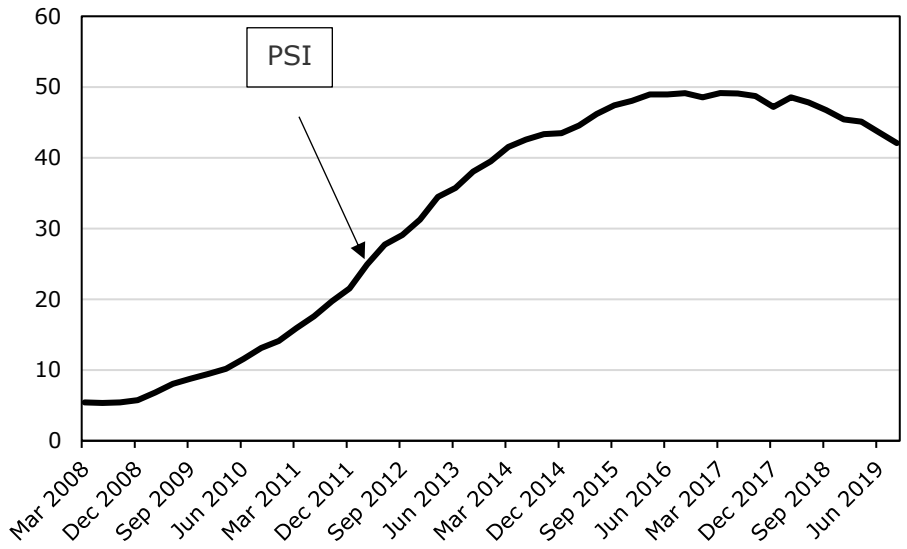


Source: Bank of Greece

The considerable decline in household disposable income, a consequence of both wage cuts and the rise in unemployment, resulted in a significant increase in non-performing loans (NPLs) and impairments, thus undermining prospects for bank profits.

In such adverse economic conditions, NPLs continued to increase, reaching close to 40 % at the end of 2013 (see Figure 23). Thus, even though the bank recapitalisation exercise had been completed, loss provisions represented more than 100 % of the banks' capital. In practice, NPLs continued to grow and peaked at the end of 2016, with 50 % of total loans. The third programme contained an additional EUR 25 billion of provision for further bank recapitalisation. In the end, only 5.4 billion was used.[39]

Figure 23. Non-performing loans as % of total loans



Source: Bank of Greece

4.4.2 The impacts of PSI on the real economy

The impact of debt restructuring on the real economy is twofold. On the one hand, debt restructuring could decrease growth because of the negative reputation effects of defaults. The harder the default, the larger these costs usually are, and thus the larger the haircuts applied.[40] On the other hand, bigger haircuts decrease the level of government debt in such a way as to improve growth by allowing the country to eliminate the debt overhang[41] and allowing a better use of resources.

The empirical literature suggests that it is difficult to quantify the impacts of sovereign defaults and debt restructuring on growth.[42] However, most results point out that defaults have a negative impact on GDP[43] and the outcomes of sovereign debt restructuring negotiations are typically inefficient.[44] What is less clear from this literature is how the trigger operates and how the transmission channels to the economy work. In practice, the negative impact on GDP is typically driven by a fall in productivity, but it is debatable why this should happen in reality. Concerning the negotiations, leading theories postulate that the main source of delay is asymmetric information combined with the inability of

[39] See EFSF, https://www.esm.europa.eu/assistance/greece/explainer-esm-and-efsf-financial-assistance-greece
[40] Trebesch and Zabel (2017).
[41] Krugman (1988).
[42] See Tomz and Wright (2013) for a review of the literature.
[43] See for instance Alonso-Ortiz et al. (2017).
[44] Pitchford and Wright (2013).

sovereigns to commit to honouring the outcomes of debt restructuring and the inability of creditors to commit to such negotiations.

Seen in this perspective, Greece was not special. Virtually all stakeholders agreed that PSI took too long.[45] Eventually, it delivered only limited debt-to-GDP relief, and GDP collapsed.

It was expected that by recapitalising banks, which were clearly a main mechanism for transmission of the negative PSI shock to the real economy, the impact on GDP would be contained. In reality, however, the year of PSI was one of the worst ever for Greece in terms of performance of the real economy. There are two possible, complementary explanations. First, because of structural weaknesses in the banking sector and the economy, the stress caused by PSI could not be handled by the system. Second, PSI had a strong negative impact on confidence, which led to deposit flight, a collapse in investment and social discontent. Such mechanisms operated in a recessionary context driven by fiscal consolidation efforts and widespread political instability.

Given the complex economic and political context prevailing at the time of PSI, it is very difficult to clearly identify causality relations. We attempt to quantify the impact of Greek PSI on GDP by tackling the question from an empirical perspective but refrain from making any assumption about the transmission channels.

For this purpose, we use a synthetic control method (SCM). This model allows us to estimate the level of per capita GDP that Greece would have reached if no default had taken place. By comparing the model's outcomes before and after debt restructuring, we are able to measure of the impact of PSI on the Greek economy.[46]

SCM[47] is a statistical approach which aims at assessing the effect of a treatment or an intervention in comparative case studies.

When trying to evaluate the impact of a treatment, the 'fundamental problem of causal inference' arises, i.e. the unobservability of an alternative case in the absence of intervention (Holland 1986). This makes the effect of the treatment impossible to identify.

One solution would be to find comparison units sufficiently similar to the units of interest. However, it is difficult to rigorously define the similarity between units, and there are no measures of statistical precision or accuracy. Therefore, any difference between two units could be due to dissimilarities in their characteristics, confounding the effect of the treatment. In our case, it is difficult to find a country similar to Greece before the debt restructuring of 2012 to assess the impact of this intervention.

The SCM is a data-driven approach that provides a systematic way for choosing a comparison unit. The idea is to compare the evolution of an outcome variable (e.g. GDP per capita) for a unit affected by the treatment (Greece) to the development of the same outcome variable for a synthetic control group. The latter is an estimate of a counterfactual scenario: it allows us to measure the evolution of GDP per capita for Greece if no debt restructuring would have been in place.

The synthetic control group is built as a weighted combination of all potential comparison units (control group) that best approximates the characteristics of the case of interest in terms of predictor variables. The selection of the units and their weight is not imposed *ex*

[45] Few stakeholders emphasized that the length of the preparation was also influenced by the complexity of the exercise in an effort to contain negative effects of PSI on the economy. In particular, bank recapitalization required a substantial preparatory work.
[46] A similar exercise is conducted by Marchesi and Masi (2020). The authors aim at studying 23 official and private defaulters over 1920-2017 by using data on 130 countries. Among these, they include Greece. Contrarily to this paper, we mainly focus on the Greek economy, thus considering only euro area countries.
[47] Abadie and Gardeazabal (2003) and Abadie et al. (2010).

ante; it is automatically generated by the software routine. This reduces discretion in selecting control units as comparison. Box 3 contains further details on the methodology.

The exercise is performed by using Greece as a treated unit and the other 18 euro area countries as control group. The treatment or intervention is the private debt restructuring that occurred in 2012. The outcome and predictor variables are the pre-treatment values of nominal GDP per capita.[48] For the outcome variable, we only consider GDP per capita of Greece, while the predictors are the GDP of the remaining euro area countries. The overall results can be presented in three steps.

First of all, it is important to assess the validity of the exercise. In **Table 2**, we report the predictor balance, the root mean square predictor error (MSPE) and the countries in the control group with weights different than zero.

Through the optimisation procedure, the weights assigned to the countries in the control group are in line with our expectations. The countries selected are those euro area countries most similar to Greece in terms of GDP per capita in the pre-default period. This makes it possible to decrease the interpolation bias, as explained in Abadie et al. (2010). Moreover, the predictor balance allows us to assess the quality of the synthetic control obtained. The difference in the pre-default period (before 2012) between the average of GDP per capita of Greece and that of the synthetic control is -0.51 %. This implies that the synthetic unit correctly captures the characteristics of Greece in the pre-default sample period.

Finally, by analysing the MSPE, we can conclude that the synthetic Greek GDP is not statistically different from the observed one in the pre-default period. The MSPE is sufficiently small: EUR 0.6 thousand. It is around 4 % of the average pre-default per capita GDP of Greece.

Table 2. Pre-treatment validity: predictor balance, MSPE, countries' weights

	Treated	Synthetic
Average pre-default GDP per capita	15.44	15.52
MSPE	0.6	
Control Group	Spain 45 % Portugal 25 % Slovenia 18 % Ireland 6 % Latvia 5 %	

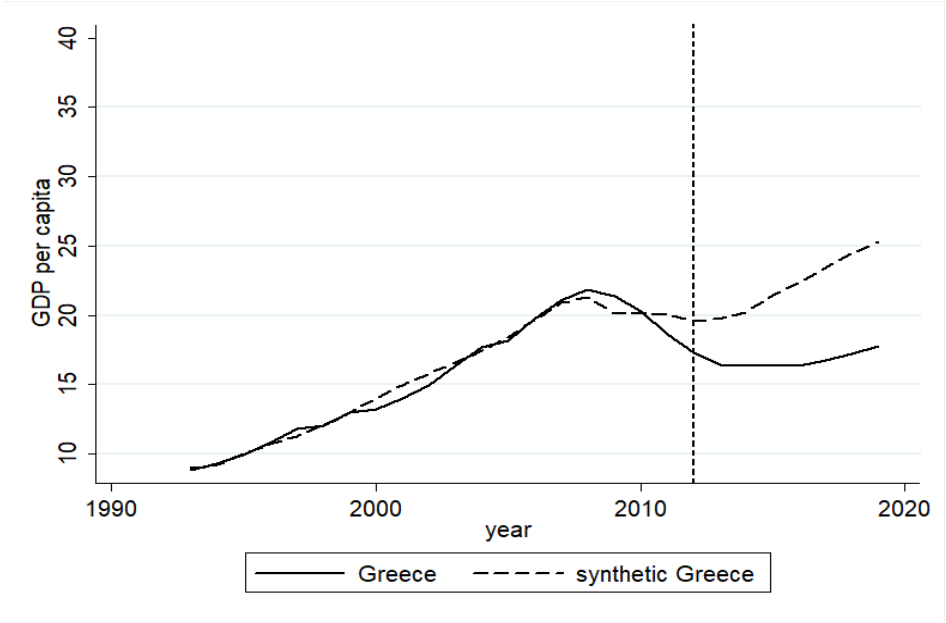
Source: Authors' computations

Note: In the first row of this table, we show the predictor balance, consisting of the pre-treatment average GDP per capita in the treated country (Greece) and the pre-treatment average GDP per capita of the synthetic control. In the second row, we report the MSPE. The bottom part of the table contains the countries in the control group with weights different than zero.

[48] We use per capita GDP for comparability reasons.

Second, we can obtain a qualitative idea of the impact of the default (**Figure 24**). In the pre-default period, the synthetic control (dashed line) follows the evolution of the observed GDP per capita of Greece (solid line). In the post-default period, there is a negative gap between the actual data and the synthetic control, which follows an explosive path.

Figure 24. GDP per capita: Greece v synthetic control (in thousand EUR)



Source: Authors' computations using STATA statistical software

Note: The solid line is GDP per capita of Greece and the dashed line GDP per capita of the synthetic control obtained via the optimisation procedure. The vertical dashed line corresponds to the year of debt restructuring in Greece: 2012.

Finally, **Table 3** provides a quantitative assessment of the impact of private debt restructuring on the GDP of Greece. The economic impact is a fall of about 20 % in per capita GDP in the year after PSI. The further one moves away from the occurrence of the event, the stronger the impact.

Table 3. Economic impact of the treatment

	h_1	h_2	h_3	h_4	h_5	h_6	h_7
Economic impact	-19.90	-23.52	-30.95	-36.53	-40.00	-42.24	-42.52

Source: Authors' computations

Note: The table shows, for every year post-default (h_1-h_7 is the period 2013-2019), the effects of debt restructuring given by the percentage difference between the actual GDP per capita of Greece and the one of the synthetic control.

While too much focus on the exact magnitude of the impact of PSI on per capita GDP resulting from the exercise may be misleading, the main message from the exercise is a substantial negative economic impact.

***Box 3*: Synthetic control method**

In a formal way, we consider N different units, i =1…I, observed over time $t = 1 \dots T_0, \dots, t, .., T$, with an intervention (e.g. debt restructuring) occurring at time T_0 for unit i=1 (treated unit), while for

the other I units the intervention does not take place (control group). The SCM estimates the effect of the treatment on a given outcome Y_{1t}, where $t > T_0$, is given by:

$$\widehat{\beta_{1t}} = Y_{1t} - \sum_{i=2}^{I} w_i Y_{it}$$

The weights w_i assigned to each unit in the control group are chosen in such a way as to minimise the pre-treatment differences between the characteristics of the treated unit and the control (synthetic) counterpart, expressed in terms of some predictors X of the outcome variable Y.

$$\text{Min } \sum_{j=1}^{J} v_j \left(X_{1j} - X_{0j} W\right)^2$$

$$s.t. w_i \geq 0 , \sum_{i=2}^{I} w_i = 1$$

Moreover, v_j are also weights, representing the relative importance of the synthetic control to reproduce the value of the j predictors of the treated unit outcome before the event takes place. They are chosen as the results of the minimisation of the mean square predictor error:

$$MSPE = \frac{1}{T_0} \sum_{t<T_0} \left(Y_{1t} - \sum_{i=2}^{I} w_i Y_{it} \right)^2$$

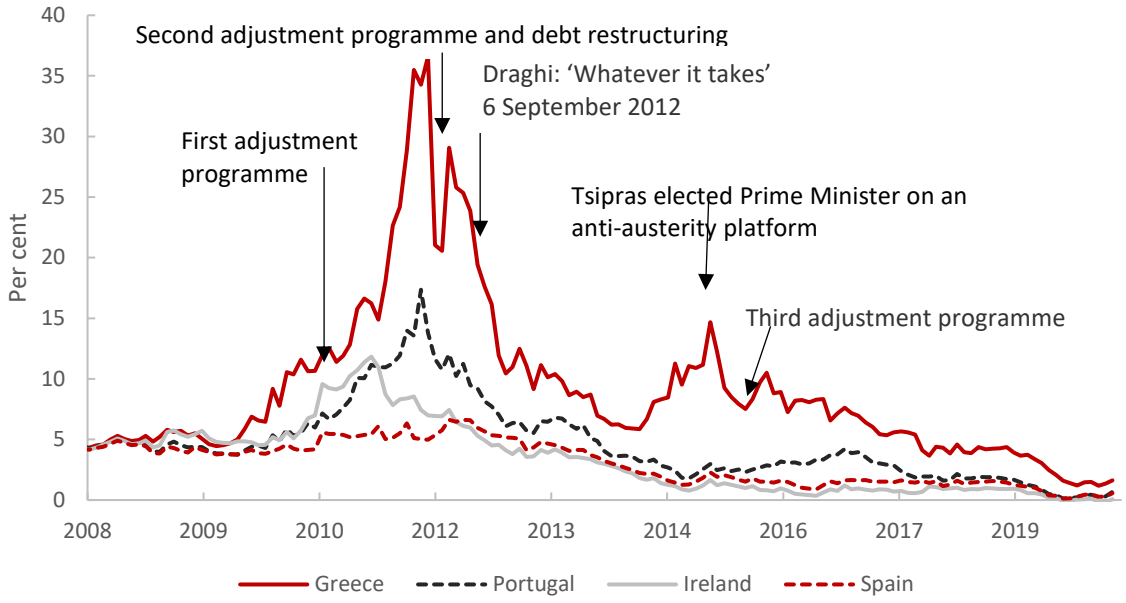
To solve this equation, we implement a nested optimisation procedure, using the algorithm provided by Abadie et al. (2014).

4.4.2.1 The confidence effect

During the Greek crisis, uncertainty and swings in confidence played a critical role in driving the failure and success of policies. At times, loss of confidence even put the whole adjustment process at risk and certainly made it more costly. Uncertainty grew strong and economic sentiment turned negative from the beginning of the crisis, but the situation deteriorated quickly once the talks about PSI started in early 2011.

Between March 2011 and March 2012, during the period of the preparation and beginning of PSI, the 10-year Greek government bond yield increased from 6 to 36 % (Figure 25). Such punitive rates illustrate investors' fall in confidence in the Greek government's commitments.

Figure 25. 10-year government bond yield for Greece, Portugal, Ireland and Spain



Source: NIESR elaboration

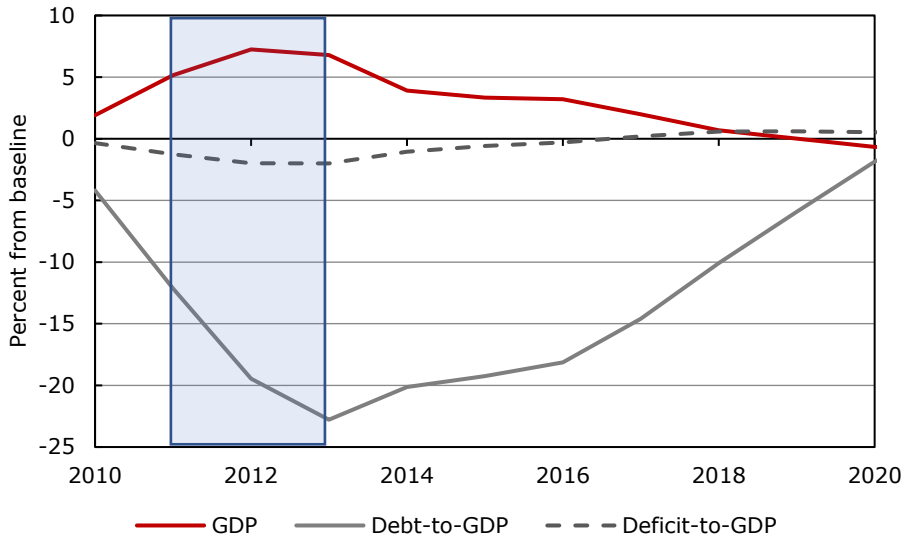
To a certain extent, however, the problem was not isolated to Greece. The Portuguese 10-year yield spiked at 17 % in January 2012 and the Irish 10-year yield spiked at 12 % earlier in March 2011 (**Figure 25**). But the Greek experience was exceptional and was fed by the risk of a 'Grexit', which markedly increased around the time of the PSI but also around the election of Tsipras. The risk of an exit of Portugal was never really considered and priced by markets. In this sense, while interest rates on Portuguese government bonds do not necessarily represents a full benchmark for Greece, the comparison is useful to isolate the potential impact of Greece specific events.

Figure 26 shows the result of the simulation on GDP and the ratios of debt- and deficit-to-GDP, if one assumes that the Greek risk premium from 2010 matched the lower risk premium of Portugal.[49]

With a lower risk premium, GDP would have been up to 7 % higher and the ratio of debt-to-GDP would have been up to 23 % lower. The biggest impacts would have been in 2012 for GDP and 2013 for debt-to-GDP.

[49] A robustness check using the average risk premium of Ireland, Portugal (which also had a programme) and Spain (which had a large crisis) indicate that the simulation does not differ much. In fact, it would make the gain in GDP bigger and the reduction in debt-to-GDP larger.

Figure 26. Simulation of a reduction in risk premium in Greece equivalent to the risk premium of Portugal



Source: NIESR elaboration

Note: Debt-to-GDP and Deficit-to-GDP are expressed in percentage points from baseline. The shock is a decrease in term premium with two troughs, one reaching -14 percentage points in 2012 and the other one reaching -9 percentage points in 2015. Simulation performed in NiGEM.

A lower risk premium would have decreased the user cost of capital and moderated the dramatic fall in investment that occurred in Greece (private sector investment dropped from EUR 35 billion in 2009 to EUR 14 billion in 2015, equivalent to a fall of 60 %).

The simulation reinforces the message that a key problem in the Greek debt dynamics was the failure to contain the loss of confidence from financial markets and people. While this exercise does not prove a direct causality of a negative impact of PSI on the real economy, it suggests that a high level of uncertainty around the PSI event resulted in a large fall in GDP. By preventing an excessive fall in confidence, growth and debt-to-GDP patterns could have been more favourable for the Greek economy and in the end less costly for the EU partners.

4.5 Question 5: Approach to debt sustainability and regained market access

As documented in detail in Section 3, the programmes' approach to debt sustainability substantially changed over time. In the first programme, sovereign debt sustainability was not the main objective. Financial support was given in an emergency situation to avoid default induced by liquidity shortage and increasingly difficult access to financial markets. Conditionality essentially focused on reducing the deficit, which was too high, and on reforms. These were seen as sufficient to restore market credibility. As the programme quickly derailed, there is large consensus that it did not contribute to regaining market access.

In 2011, it became clear that ensuring debt sustainability had to be a fundamental objective for the success of the Greek programme. By introducing PSI and insisting on a large privatisation plan, the second adjustment programme aimed at achieving this objective. Debt sustainability was expected to be delivered by a combination of debt relief through PSI and large revenues (as much as EUR 50 billion over five years) from privatisation, complemented by structural reforms and continued consolidation. As illustrated above, none of these expectations materialised. After the debt haircut in 2012,

the debt-to-GDP ratio increased again in 2013 to almost the same level as in 2011, driven upwards by a persisting deep recession. The privatisation plan did not perform. It experienced very large delays and its revenues were largely overestimated. By 2016, total privatisation receipts were in the order of EUR 3 billion instead of EUR 50 billion (for details see, Section 4.3.1).

Such negative economic developments were amplified by financial market turbulence in the euro area and a protracted difficult political situation in Greece, which had five different prime ministers and governments over the duration of the second adjustment programme. A dithering commitment to the programme at the political level increased uncertainty, kept the perceived risk of an exit from the euro area high and contributed to fuelling capital outflows. While debt sustainability and regaining market access was an objective of the second adjustment programme and conditions might have appeared correct on paper, they failed to take into account two key elements: lack of growth and negative political developments. The outcome was failure. In June 2015, Greece was on the brink of default.

In summer 2015, after a sequence of dramatic economic and political events, the crisis culminated in a referendum about the acceptability of the third programme. The conditions of the programme were rejected. The Tsipras government renegotiated them and the third programme was signed in September. Soon after that, it became clear again that debt sustainability was far from being achieved given the protracted recession and the banking crisis. The IMF did not participate in the programme, as no agreement could be found among the lenders. The IMF position was that while the additional OSI improved medium-term debt sustainability, there were still significant long-term risks. The main point for the IMF was that the private sector would not refinance at affordable rates the huge amounts of official debt falling due according to the schedule of the programme.

Following on the political promise of the Eurogroup in May 2016, in early 2017—about one year after the third programme was agreed on—a re-profiling of the EFSF/ESM repayment terms was approved, with the objective of moving the Greek debt towards a clearer sustainable path.

The measures[50] included:

- increasing the weighted average maturity of loans from 28.3 to 32.5 years;
- reducing interest rate risk by exchanging EFSF/ESM floating-rate bonds for fixed-rate bonds, interest rate swaps and matched funding for future disbursements;
- waiving the step-up interest rate margin (originally set at 2 %) for 2017 on an EUR 11.3 billion EFSF loan tranche.

The impact of these measures on the Greece's debt-to-GDP ratio stock was estimated to be a fall of 25 percentage points until 2060. Extended maturity and lower interest rates substantially reduced GFNs by an estimated 6 percentage points over the same period. Greece's GFNs are expected to remain below 15 % of GDP over the medium term and to comply with the 20 % threshold in the long run.

The Eurogroup also agreed that additional debt measures may be considered in order to ensure that GFNs targets are met, assuming that Greece meets the requirements of the EU fiscal framework at the end of the grace period in 2032.

The ESM stability support programme also included a milder fiscal path adjustment premised on primary surplus targets consistent with expected growth rates: -0.25 % of GDP in 2015, 0.5 in 2016, 1.75 in 2017 and 3.5 in 2018 and beyond. According to this

[50] See https://www.esm.europa.eu/assistance/greece/explainer-esm-and-efsf-financial-assistance-greece

revised path, the general government budget deficit was expected to fall below 3 % of GDP in 2017.

In summer 2018, after the conclusion of the ESM stability support programme, Greece exited from eight years of adjustment programmes. In 2019, it managed to return to markets and sell sovereign bonds with 5- and 10-year maturity at rates higher than other EU programme countries, but below expectations. Moreover, 15-year bonds were sold in 2020 and 10-year bonds were trading at a rate below 1 %. These market issuances and the debt relief of around EUR 0.6 billion received in May 2019 resulted in a liquidity buffer of about to EUR 32 billion (17 % of GDP) for the Greek government (as of 2019).[51] This is higher than other countries and was supposed to meet government financing needs through 2022 without further borrowing.[52]

The share of total Greek government debt on the market is still very small and there is no doubt that the low-interest-rate environment played an important role in making conditions favourable to Greece. Yet, as argued in Alcidi and Gros (2018), given the persistent low GDP growth, it is very unlikely that Greece would have been able to regain market access without the ESM lending conditions.

In general, there is a broad consensus that the financing conditions accompanying the third adjustment programme helped Greece regain market access. While stakeholders do not fully agree on the impact of PSI, they broadly consider that OSI was a key step for Greece in restoring market access.

Among the stakeholders consulted no full consensus emerged around the positive impact of the conditionality included in the third programme. Several saw the reform package, i.e. the programme itself, as unrealistic and even counterproductive for growth given the state of the economy and the reform fatigue. For other stakeholders, the three programmes' reform packages should be considered as part of a single process that started in 2010. In this perspective, the third programme was fully consistent with the reforms implemented over time have and necessary to complete the process of improvement of the structure of the economy. Most stakeholders expect such efforts to be delivering their positive effects on growth over time.

[51] See file:///C:/Users/admin/Downloads/1GRCEA2019002.pdf
[52] It is still too early to assess its extent, but there is no doubt that the COVID-19 crisis will dramatically alter this positive condition.

5 Assessment

This section combines the evidence collected and analysed in Section 4 with the outcomes of the scoping interviews and the validation workshop and attempts to respond to each of the five questions. As argued earlier, an important element to bear in mind is that the three programmes are different and should be assessed separately. Moreover, the assessment should not rely on what is known today but needs to be based on the circumstances present when these programmes were negotiated. There are three key points on which the programmes started from quite different assumptions than those we would use today:

- Default: in 2010, the perceived wisdom of the day was encapsulated in the paper by the IMF with the title 'Default in today's developed countries: Undesirable, unlikely and unnecessary'. That 'this time is not different' became apparent only shortly afterwards.
- Reforms: the capacity of the Greek administration to implement structural reforms was overestimated, as was the probability of success of externally imposed reforms.
- Interest rates: before PSI, risk-free rates were about 3-4 %; this made a haircut on the nominal debt desirable to reduce the debt level. Lower, and even negative, risk-free rates made official debt re-profiling politically acceptable. In such circumstances even a very large debt could be made sustainable, by refinancing it at maturities that are sufficiently long.

1. *To what extent was the approach for assessing debt sustainability in the programmes appropriate, both with regard to the applied methodology as well as the underlying assumptions?*

The approach to debt sustainability was different in each of the three programmes.

The first programme was prepared under very tight time constraints and to a large extent by IMF staff. Debt sustainability was not a key element of the programme. The aim was to restore market confidence by quickly reducing the very large budget deficit. This resulted in a programme with a strongly front-loaded fiscal consolidation. The programme quickly went off track due to Greece's strong dependency on domestic demand. Debt continued to increase.

In the second programme, prepared by the IMF and the EU institutions, debt reduction became a key objective, which was expected to be achieved by a combination of PSI and an ambitious privatisation programme. An expected lower debt—supported by small deficits and a reduction in the interest rates on debt held by the official sector—was supposed to improve debt sustainability. However, PSI only reduced the debt-to-GDP ratio to a very limited extent, and it increased again afterwards; similarly, the privatisation plan did not manage to deliver.

The third programme, financed by the ESM, took a different approach than the others. It put debt sustainability at the centre as its key objective. In doing so, it moved from a stock- to a flow-based approach to DSA. The traditional DSA was complemented by an analysis based on GFNs. Based on this approach, the financial support offered to Greece was tailored to move debt into a sustainable pattern, essentially through debt re-profiling. As argued above, this was rendered possible by the very low risk-free rates which had taken hold in the meantime.

The three programmes represented an important learning process in terms of the functioning of the Greek economy.

The one criticism one can have is that some key features of the Greek economy, namely the lack of domestic savings, limited openness, a debt largely held by foreigners and structural weaknesses, were not recognised in the first programmes. Such aspects received more attention in the second programme and only the necessary consideration in the third programme.

A second point of criticism, which can be made without the benefit of hindsight, concerns privatisation. Making massive privatisation receipts a major plank went against any previous experience.

Last, based on stakeholder consultations, the trade-off between debt reduction and fiscal adjustment was not sufficiently taken into account in the design of the programmes. This is considered one of the reasons that Greece needed three programmes. In particular, while the fast-growing Greek debt required a large front-loaded fiscal adjustment, its recessionary impact was underestimated because the structural features of the economy were not taken into consideration. This argument is clearly illustrated by a simulation exercise in Lenoel et al. (2020).

2. *To what extent was the approach to debt restructuring appropriate, in particular in terms of the timing of decisions and delivery, scope of measures and link to policy conditionality?*

In early 2011, it became clear that the first programme was going off track. The change in the political discourse among euro area Member States increasingly pointed to the need for PSI, both to cut a too high debt and to make it politically acceptable to offer more favourable conditions on the credit extended by the official lenders (first OSI). We do not take a stance on whether the decision about PSI came too late and should have occurred at the very early stage of the crisis. Given the fact that safety nets in the euro area were inexistent before Mid- 2010, it might have been the case that earlier PSI was not realistic, from neither an economic nor a political point of view.

According to the majority of stakeholders interviewed, the implementation of PSI, once the decision had been taken, took too long. This increased its cost through two channels: (i) debt was repaid at face value in the meantime, and (ii) above all, the uncertainty about the details of the final agreement as well as the difficult negotiations weakened the real economy. As argued in section 4.2, based on the literature this is more a regularity than an exception. Default negotiations are usually long and entail uncertainty. According to some stakeholders directly involved in the PSI, what was specific to Greece, was the fact that the promise to save the country from default made less than two years earlier was not kept. This had a very negative effect on public sentiment and trust in national and EU institutions.

In the end, as while nominal debt was formally reduced by about EUR 100 billion, or about one third of the total stock of debt, the reduction in the debt-to-GDP ratio was very limited, only 12.5 percentage points. This limited outcome, which is actually typical of many debt restructurings, is explained by the cost entailed by bank recapitalisation (about EUR 50 billion) and the very bad performance of the Greek economy in 2012. GDP fell further, driven by the ongoing fiscal consolidation and the very strong fall in investment—both public and private—and the absence of relief coming from exports.

The scope of PSI was as large as it could be, including most Greek-law bonds. But its effectiveness was limited also by the fact that at that time, a large part of the debt was in the hands of holders who were de facto senior: the ECB (via the SMP) and the GLF.

In late 2012, OSI turned also towards alleviating the cost of official debt. There is consensus among the stakeholders consulted that OSI was key for debt sustainability. While the first OSI was important, the third programme and the subsequent re-profiling of the official debt proved critical, when ultra-low interest rates made it possible to reduce the interest on official debt to about 1 % and extend its maturity to 40 years. This last step was key in supporting Greece towards long-term debt sustainability.

Most stakeholders agreed that the timing of PSI was essentially driven by political considerations rather than economic ones. In addition, OSI cannot be assessed in isolation from PSI, which was a *conditio sine qua non* for it. This could suggest that while *ex post*, one could reasonably argue that earlier and larger OSI, possibly without PSI, might have been more effective for the debt sustainability of Greece and even cheaper for the EU, politically it was not viable. Furthermore, as shown in Section 4.2, the macroeconomic environment changed over time, and the very large fall in interest rates substantially reduced the cost of the OSI in the form of debt profiling, making it more acceptable.

3. *To what extent did success or failure/delay of overall reform implementation have an impact on debt sustainability?*

Structural reforms were a constant element of all Greek adjustment programmes, and the emphasis on reforms (as well as the frustration over lack of implementation) increased over time. In the IMF and European Commission reports, almost all reforms are described as having been delayed. The catch word, structural reforms, contains hundreds of different measures, most of which do not have a direct impact on debt. The only two with a direct impact are privatization, which should reduce the existing debt stock, and pension reforms, which should reduce future implicit liabilities. It was hoped that together, structural reform packages would increase growth and thus improve sustainability. However, this did not happen. This failure was a key element in keeping the debt ratio high and maintaining doubts about debt sustainability.

The Greek privatisation plan was extremely ambitious *ex ante*, but it was never realistic in terms of speed and size (10 % was realised years late). In fact, in the course of the programmes, it became clear that privatisation could not achieve a substantial impact on the solvability of the country. Some stakeholders noted that the failure of the privatization programme, while unfortunate, it cannot be ascribed as a cause of lack of reduction of the debt level.

Pension reforms were designed and implemented to reduce future liabilities. In the short term, however, they had a negative impact on demand, as de facto, pensions were the main source of income for a large number of Greek households hit by strong increases in unemployment and almost inexistent automatic stabilisers.

Labour market reforms were the first reforms to be approved and implemented, already during the first adjustment programme when political support was still high. Product market reforms took much longer, as strong internal opposition made the process more difficult and slow. In the end, many key reforms have been approved, and their effects are slowly materialising. However, in the course of the programmes, labour was the main factor that had to shoulder the burden of the adjustment. Productivity and competitiveness gains did not materialise. Such an imbalance is likely to have contributed to lessen the support for the reform process and the programmes in general.

Several stakeholders highlighted that the lack of ownership of reforms and the opposition to them was a major problem that hindered the success of the programmes. Strong opposition to reforms negatively affected the entire process of dialogue between the parties. In the end, the limited success of reforms during the eight years of programmes

enabled the 'supply side' of the economy to contribute only to a very limited extent, if any, to debt sustainability.

4. *How did private sector involvement in 2012 affect the economy and the financial sector in Greece? Did the programmes adequately reflect these effects?*

It is difficult to establish a direct link and quantify the impact of PSI on the economy. This is because many other factors, economic and political, had a negative effect at the same time, both on the Greek financial sector and on the Greek economy in general.

Most theoretical models of government default assume that default has a negative impact on output, at least in the short run. However, the precise channels through which this happens are rarely identified and even more rarely quantified. Our own estimate, based on the SCM, suggests that PSI itself might have had a substantial negative impact, worth several percentage points of GDP.

A major limit of the programme was the fact that it did not incorporate any assumption that PSI could have a negative impact on output. The premise of the programme was that PSI would re-establish debt sustainability, thus leading to lower financial market tensions and a resumption of growth. Even *ex post*, it is difficult to pinpoint the reasons that this did not materialise, but based on past experiences, the result is not a surprise.

One reason might be that the haircut, although large by historical comparison and close to 75 % of the net present value, was not sufficient to reduce the debt-to-GDP ratio. In general, PSI was not sufficient to reduce the fear of a Grexit, the main destabilising factor for financial markets. While it cannot be proved that PSI contributed to feeding additional Grexit fears, the political context in which PSI occurred did increase uncertainty. The continuing uncertainty in the financial sector was quickly transmitted to the real economy. The 'credit channel' was particularly powerful, given the strong reliance of the economy on aggregate demand and the absence of any external safety valve, like exports, to stabilize income. In addition, the negative confidence effect drove down investment and political support for the programme. A negative feedback loop was thus operating in a highly contentious political environment. Debt restructuring are generally likely to put the economy on a knife edge: a negative loop ensues if the cut in debt is not large enough to overcome the direct impact on GDP. To start a positive loop, the haircut must be large enough to ensure a material reduction in the debt-to-GDP ratio, and the political system (not just the current government) must support the plan. The latter condition might have been decisive in the case of Greece, but it is not something which can be imposed from the outside.

Among stakeholders, views on PSI were quite divided. While most emphasised the political context in which PSI was agreed to and the fact that some measures were taken to reduce the negative impact on the economy, some judged it a mistaken and very costly choice for Greece and its economy.

5. *To what extent did the overall approach to debt sustainability help Greece regain sustainable market access?*

All the three programmes had the objective to restore market access for Greece. But there was no single overall approach. Put simply: in the first programme, the approach was a quick fiscal adjustment to regain confidence; in the second one, it was debt reduction via PSI; and in the third one, it was the re-profiling of official debt.

The first programme failed. Greece managed to get back to the market after the second one in 2014, but at rather high rates, and the political uncertainty of 2015 took the country off again.

It is only after the end of the third programme, in 2019, that Greece has managed to fund itself on the markets at rates which make the debt sustainable. This was made possible by a combination of an unprecedented re-profiling (interest rate and maturities) of the debt held by the official sector and the very-low-interest-rate environment (much more favourable than in 2012). In addition, large cash buffers may have worked as an insurance factor for investors, but cash buffers also have a carry cost and increase the gross debt ratio.

There is consensus among stakeholders that OSI, which resulted in longer maturities and lower interest rates, was key to regaining market access. Such a judgement is supported by the evidence shown in Section 5 about the sizeable impact of the debt profiling on the GFNs. The views on the role of PSI are however less aligned, even years after the event, reflecting the dilemma between the reduction in the level of debt and the limited, or even negative, impact on overall debt sustainability.

6 Conclusion

The purpose of this study was to provide answers to five questions related to the issue of debt sustainability in the three Greek adjustment programmes: the appropriateness of the DSA, the appropriateness of debt restructuring, the impact of structural reforms on debt, the impact of PSI on the economy and the ability to restore access to markets.

Answers to these questions have been presented in Section 4 and lead to a few concluding messages. The overall issue behind these more specific questions is whether sovereign debt sustainability was properly addressed and contributed to the success of the Greek adjustment programmes.

It is easy to criticise the three programmes based on what we know today, since each of the programmes had its logic given the information available at that time. The EU was engaged in a 'learning by doing' exercise, having to deal with an unprecedented event. It took some time to accept that the experience of debt restructuring programmes in developing economies could be relevant for an EU Member.

As clearly stated in the study, the three programmes are different and should be assessed separately. This is because over eight years, significant changes occurred in several respects: the stability of the economic and political environment, the prevailing wisdom about sovereign debt default, the availability of mechanisms to deal with contagion and, not least, the understanding of the Greek economy, with its limits and potential. These changes affected not only the objectives and design of the programmes, but also their implementation.

At the time of the first programme, in 2010, the fact that a euro area Member State lost market access was an unprecedented event. By the time of the second programme, the euro area at least had an institution to deal with sovereign debt crises, and an agreement had been reached on the inevitability of some reduction in the debt, although contagion remained a serious issue. The third programme was needed because of high political instability in Greece, but at that time, the economy of the euro area had stabilised and interest rates had fallen dramatically.

The different role that sovereign debt sustainability played in each of the programmes reflects such changes but also the relative involvement of the IMF and EU/ESM in the design of the adjustment programmes and the provision of financial support. The IMF and the EU represent different constituencies, which had substantially different stakes in the Greek crisis. This affected financing conditions and the decision to provide additional financial support, which both had an impact on debt sustainability. This aspect is important because the approach to DSA does not vary much across institutions. What differs according to who does the DSA is the political judgement of the weight that is applied to a possibly mistaken decision.

The overarching goal of the programmes moved from restoring market confidence, in the first programme, to explicit debt sustainability and sustainable market access in the following two.

The first programme did not succeed in restoring market credibility. The short time horizon and front-loaded consolidation did not result in debt reduction, and trustworthiness was not restored. The second programme was largely derailed by domestic political events. It is only after the third programme that market access for Greece was restored, at acceptable interest rates. In practice, Greek debt was, and still is, largely in the hands of official lenders, who apply very favourable conditions, both in terms of maturity and interest rates. This was essentially the result of OSI, which occurred in 2012 and 2017.

OSI became politically acceptable because of the large fall in risk-free interest rates. Without such a favourable external environment, the situation might have been very different and much more difficult for Greece. This suggests that while *ex post*, one could reasonably argue that an earlier and larger OSI, possibly without PSI, might have been more effective in reducing the debt, refinancing conditions for the lenders were much more expensive in 2010 and, hence, more difficult to accept.

Overall, changes to the EFSF and the ESM lending terms had a positive impact on deficit and debt sustainability, facilitating the return to the markets.

On the impact of the other intervention to restructure the Greek debt, PSI, there is no full consensus even today. There is no doubt that PSI cut the total amount of sovereign debt. However, this was not associated with a large enough reduction in the debt-to-GDP ratio nor with an increase in market confidence that could have led the country towards a new path in terms of growth and debt sustainability. It is very difficult to ascertain whether PSI was itself the cause of the deterioration of the economic situation in 2012 or whether it was just an event in a very difficult political and economic context. However, the expectations set in the programme were not met. One could argue that they were misplaced in the first instance, possibly driven by the hope to withdraw official financial support as soon as possible. The experience with sovereign defaults suggests that debt restructuring negotiations typically take a long time, which can strongly increase uncertainty. In addition, while the economic transmission channels are not always clear, sovereign defaults are systematically associated with large falls in GDP. In this perspective, a main criticism of the approach to PSI is not the event itself but the underestimation of its impact on GDP.

Last, structural reforms were a constant of the three programmes. The assessment of the implementation and effects of structural reforms is driven by evidence of delays and a lack of political and public support. The perception of an excessive adjustment burden on labour, while product market reforms were not delivering on growth, created a sense of unfairness and a further rejection of the reform process. Maintaining national ownership of the reform process and achieving the implementation of fair reforms is key to ensuring popular and political support, and hence a successful programme.

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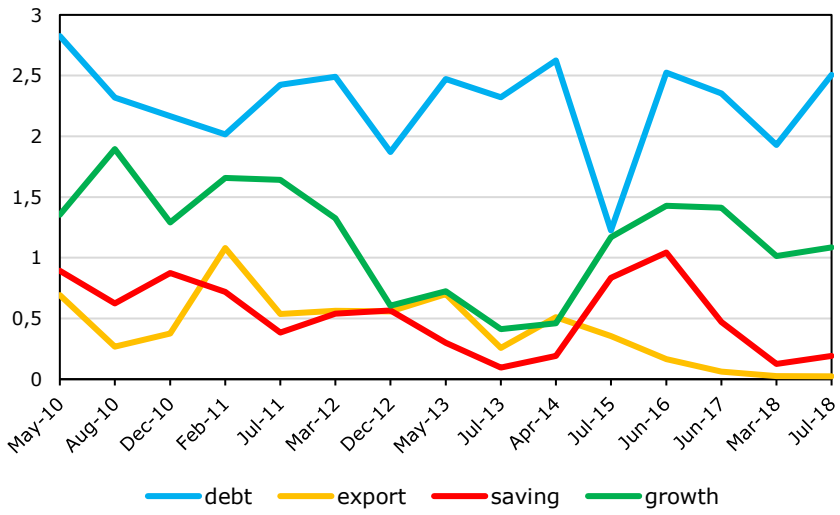
Annex 1: Text analysis

From the analysis of **Figure 27Error! Reference source not found.**, we can draw three main conclusions. First, the documents mainly focus on 'debt', while 'growth', 'export' and 'saving' are topics that seem to be marginally addressed, especially in the second programme. Second, since the last review of the second programme, in April 2014, we observe a slight increase in the frequency of "saving" and "growth", while "debt" is less present in the third programme in comparison to the previous ones. However, this could be due to the fact that for the third programme, departing from previous ones, the document under analysis is an assessment of the request for stability support in the form of an ESM loan. Finally, in the first part of the third programme we observe that "saving" is much more present than before.

Figure 27. Words occurrences in official documents



Source: EC website, authors' computations

Note: normalised by total number of words in the relative document and multiplied by one thousand. Each period corresponds to one of the official documents downloaded from the EC's website (i.e. the three programmes and the relative reviews).

Annex 2: Methodology

The methodology to assess sovereign debt sustainability in Greece during the three programmes relies on the principles of the policy evaluation approach and aims at answering the five questions indicated in the request for services (RfS).

It consists of identifying the intervention logic of each of the three programmes, focusing on sovereign debt, and defining an assessment framework where the elements of the intervention logic and the policy evaluation help respond to the five questions under study in a structured and evidence-based fashion.

The intervention logic

This analytical approach aims to identify the main features of the Greek adjustment programmes in order to clarify the logic followed by EU decision makers, more specifically the European Commission, when establishing such programmes with particular reference to sovereign debt sustainability.

Concretely, the intervention logic includes a description of the challenges that the programmes intended to address and the needs that financial assistance had to meet, the expected outputs, results and impacts of the programme and the measures needed to achieve them. The following components of the intervention logic are identified:

- the rationale for each programme in terms of needs and problems, accounting for the economic and political context;
- the intervention components, in terms of policy measures to be implemented and which are inputs in the programmes, in order to meet the conditionality for disbursement and achieve the overarching intended objectives;
- the expected outcome of the intervention in terms of output, results and intended overarching impacts.

This first step of the intervention logic mainly builds on documentary evidence collected from official documents like those related to the economic adjustment programmes of Greece and the reviews of its implementation (see Section 3).

The intervention logic of each programme serves as a background to select and identify relevant data sources, collect additional information—both quantitative and qualitative—and construct counterfactual scenarios. The outcome of the analysis serves to answer the evaluation questions.

Scoping interviews with selected stakeholders in the early stage of the study helped to ensure the right focus of the work and to consider additional factors to better understand the rationale for certain choices and their outcome. The list of interviewees together with guideline interview questions is reported in Annex 4. Interviews have been anonymised and their main messages are summarised in Annex 3. The key insights have been integrated in the analysis (see Sections 4 and 5).

A stakeholder workshop took place on 13 May 2020. Given the current COVID-19 related circumstances, the workshop took place online. The event represented the final input in the analysis from stakeholders involved in the adjustment programmes. Invitees received a summary of the main findings of the analysis in advance, and the workshop gave them the opportunity to learn about the preliminary findings of the study and the occasion to provide feedback on the different aspects of the analysis and the preparation of the overall assessment. In this sense, it worked as a validation exercise of the analysis conducted and helped in the formulation of the conclusions. Annex 4 reports the outputs of the

workshop in terms of participants' views on specific matters and a summary of the main comments on the work presented.

The remainder of this Annex provides an overview of the approach to build the analytical framework and methodological approach to answer each of the questions in the RfS.

Evaluation framework

As anticipated above, the analytical framework consists in conducting the analysis necessary to answer the five questions under study. In doing so, we keep in mind the identified intervention logic of each programme and the objective of the study to deliver a sound evidence base.

1. *To what extent was the approach for assessing debt sustainability in the programmes appropriate, both with regard to the applied methodology as well as the underlying assumptions? To what extent did the analysis appropriately factor in the trade-off between debt reduction needs, the time horizon for adjustment and the degree of ambition of primary surplus targets*?

The study presents insights about the DSA methodology and its application, disentangling the role of assumptions about key variables, parameters and the time horizon in generating alternative debt paths. It then attempts to consider the 'political' dimension around the sustainability assessment of the Greek debt, distinguishing the IMF and the EU (including the ESM) perspective. It also highlights how over time, the focus moved from the DSA to a gross financing needs (GFNs) approach, namely from a stock to flow analysis, and what it meant for the adjustment programme.

2. *To what extent was the approach to debt restructuring appropriate, in particular in terms of the timing of decisions and delivery, scope of measures and link to policy conditionality?*

To answer this question, the study first presents the PSI features. It then assesses PSI's timing, size and impact on the sovereign debt, based on official documents, existing literature and the insights from interviews. We then present details about OSI in 2012 and 2017. Based on evidence and interviews, we evaluate its impact on interest rates and on the sustainability of sovereign debt.

3. *To what extent did success or failure/delay of overall reform implementation have an impact on debt sustainability?*

To answer this question, the study relies on official documents, existing literature and interviews with different stakeholders to evaluate progress of reforms over time and how their delay had an impact on growth but also on the support for the programme. This subsection contains a recollection of facts around privatisation and its outcome, as privatisation was expected to drive a substantial debt reduction.

4. *How did private sector involvement in 2012 affect the economy and the financial sector in Greece? Did the programmes adequately reflect these effects?*

To analyse the impact of PSI on the economy and on the financial sector, we combine a recollection of the facts, findings from the literature on defaults, a quantitative exercise to simulate a Greek growth path with an adjustment programme without PSI and insights from stakeholder interviews. Stakeholders views on the impact of PSI differ greatly and

tend to reflect political and economic considerations, which seems to lead to different answers.

5. *To what extent did the overall approach to debt sustainability help Greece regaining sustainable market access?*

The answer to this question is based on the analysis carried out to answer questions 1 to 4, and with the support of interviews with relevant stakeholders.

Strengths and limitations

The approach of the study has been designed to ensure a sound and balanced assessment.

First, extensive academic literature and reports plus a large set of official documents exist on the Greece adjustment programmes, in addition to reviews from the European Commission, the IMF and the ESM. These constitute an important body of information, which has been the starting point of the study.

The preparation of the study has benefited from the oversight of the ISG and in particular of DG-Ecfin. Stakeholders and experts/academics—who took part in the Greek adjustment programmes directly or have deep knowledge of the facts—were involved in the process of preparation of the study. They were given the opportunity to express their views and their reading of the facts as well as to provide feedback to the study and take part in the process of validation of the analysis and of the provisional findings.

The analysis and the assessment encountered a main, overarching limitation. During the Greek adjustment programmes, politics and economics were strongly intertwined, and a complex set of events, in Greece and outside, affected the design, implementation and outcome of the programmes. This makes it very difficult to disentangle causality relations or identify direct transmission mechanisms from one event to a macroeconomic outcome. Furthermore, outcomes of models and counterfactual exercises have to be taken with caution as they cannot account for the complexity of the reality nor for the political context. Their usefulness relies on their capacity to isolate transmission channels and impacts focusing on a particular aspect, but they cannot capture the full reality.

Annex 3. Outcome of stakeholder consultations

Overview of the scoping interviews

In the initial stage of the project we conducted several interviews with key experts who took part directly in the Greek adjustment programme, experts who followed the events as well as policymakers of that time. Annex 4 contains the scoping interview guideline. Table 4 provides an overview of the answers to the key questions

Table 4. Overview of the scoping interviews

Question	Summary stakeholder answers
*To what extent was the **approach for assessing debt sustainability in the programmes** appropriate?* • *applied methodology & underlying assumptions?* • *trade-off between debt reduction needs, the time horizon for adjustment degree of ambition of primary surplus targets?*	• DSA methodology is known – 4 key variables and partial equilibrium • The approach changed over time: - In April 2010-2011, debt sustainability was not the crucial question ➔ Simple and stylised exercise - In May 2011 debt restructuring was on the table ➔ Approach changed, DSA is crucial - In the third programme add-on: checking the evolution of debt over a longer term and conventional targets for debt level ➔ Approach from stock to flows (GFN) • The issue of debt sustainability evolved over time: from no relevant to unsustainable to make it sustainable. • Key issue: assumptions about growth and the primary surplus (assessment of debt sustainability depends on projection of these two variables); in the first two programmes they turned out to be wrong. • The understanding and assessment of length of crisis was optimistic, but also the fiscal consolidation and the economic pass-through were underestimated. This was based on the experiences of other countries. However, the situation was unprecedented for an advanced economy. • Underestimation of the social backlash. • Important to stress the real time aspect: IMF approach was dominant wisdom, then it changed. • Time horizon is crucial: IMF short and EC longer (this is the time of policy coordination), ESM very long (until loans are repaid).
*To what extent was **the approach to debt restructuring** appropriate,* • *timing of decisions and delivery,* • *scope of measures and* • *link to policy conditionality?*	It refers to PSI and OSI: two different interventions • *Ex post* most agree that PSI came too late and too little and also lasted too long. • It took way too long for restructuring to be decided and implemented because of political obstacles. →Implications for Greek economy. • Strong disagreement on the need of PSI. • The OSI and debt relief were the big changes. • OSI became necessary because of low growth. • OSI also took long time to be agreed: uncertainty extended for long time. This was very negative on the economy.

	• Greek economy dramatically underperformed expectations: → OSI was the realization that PSI was not enough and recession was much deeper than expected. • There is no link to policy conditionality because PSI is not part of MoU
*To what extent did success or failure/delay of overall **reform implementation** have an impact on debt sustainability?*	• Agreement that delays and non-implementation of reforms was an obstacle. • Key problem: lack of support from domestic policymakers → If reforms are perceived as an imposition, they will not work. • It takes long time for reforms to have an impact. • Sequencing and quality was not taken well in consideration, at first the focus was strongly on fiscal consolidation. • Product market reforms should have come before labour market reforms. These could be used even when market conditions are weaker. • Most key reforms have no direct fiscal impact and only a lagged positive effect on growth, but they are crucial for the sustainability of an economy.
*How did **PSI** affect the economy and the financial sector in Greece?*	• On the impact on the economy, substantial disagreements: a) mildly positive impact b) disaster for the economy c) no effect • On the impact on the domestic financial sector, negative: - because of the haircut on bond holdings /because of their structural vulnerabilities - main channel was the banking sector: although measures were taken to recapitalise banks and keep access to market (ELA), this was not enough in terms of capital and insufficient. - problem for Greek banks: lack of trust in the economy → high funding cost → negative impact on banks' profitability. - huge implications on Greek banks: the inability to make them functional aggravated the social sacrifice, and made the development of the programme longer and much more problematic. - Positive expectations did not materialise (debt issue was only the icing of the cake), even after restructuring: debt was unsustainable and this led to OSI.
*Approach to debt sustainability help Greece regaining sustainable **market access**?*	Disagreement on the first two programmes, quite agreement that the third programme and the debt relief was a game changer for sustainability

Source: Own elaboration

Overview of the stakeholder workshop

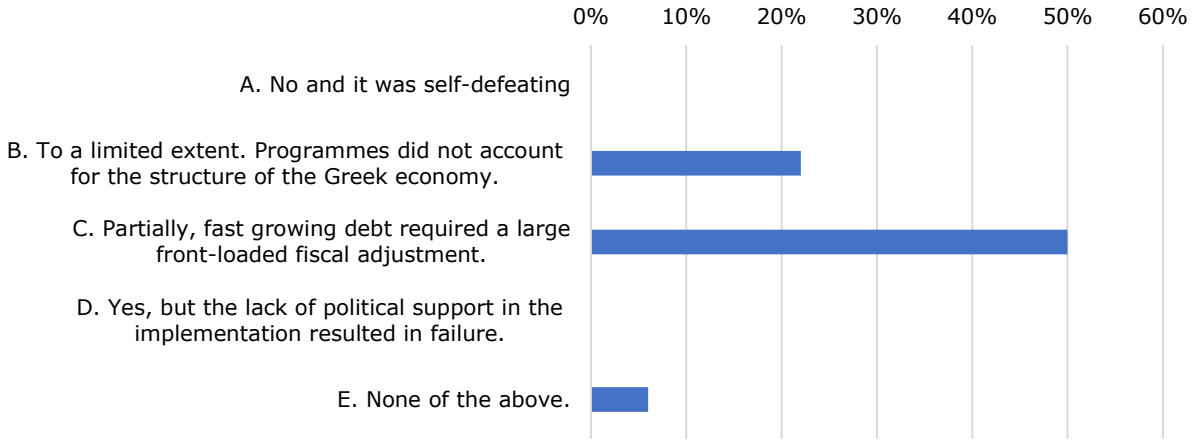
The stakeholder workshop involved a total of 20 participants. In addition to the CEPS team and the members of the ISG, 12 senior officials from the main institutions involved in the Greek programmes (European Commission, IMF, ESM) and independent academics participated in the discussion. The comments focused on the main findings of the evaluation which were presented by the CEPS team. Given the online format (and limited time), polls with multiple choice questions were used to gather participants' views and kick-start the discussion. The results of the polls are shown in the bar charts below. Comments, feedback, and additional sources of information from the experts were used to amend and/or integrate the analysis and hence in the formulation of the final assessment of the study. A summary of them is presented in Table 5. They are based on outcomes of the polls conducted during the workshop and on the oral feedback

Table 5. Summary stakeholders' views

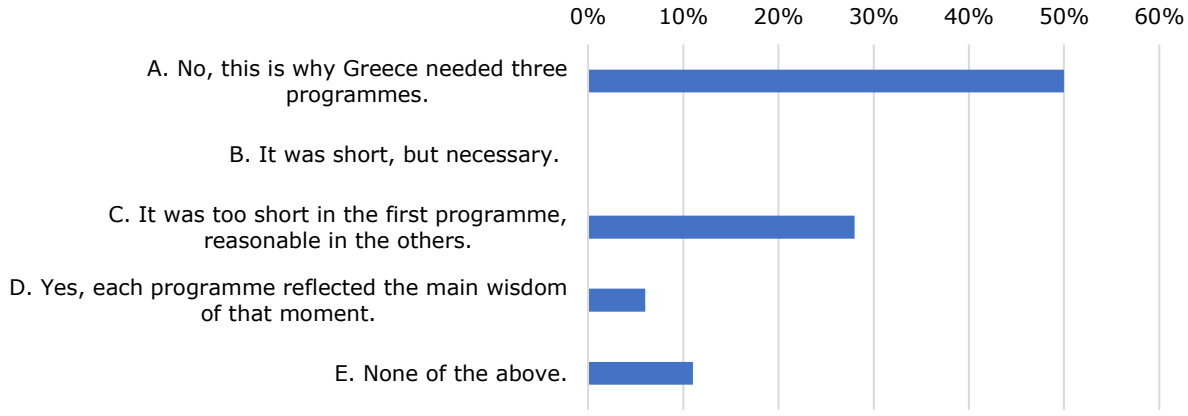
Question	Summary stakeholders' views
*To what extent was the **approach for assessing debt sustainability in the programmes** appropriate?* • *applied methodology & underlying assumptions?* • *trade-off between debt reduction needs, the time horizon for adjustment degree of ambition of primary surplus targets?*	• The majority of respondents agreed that the trade-off between debt reduction and fiscal adjustment was not fully taken in to consideration. The Greek fast growing debt required a large front-loaded fiscal adjustment, but the features of the Greek economies were not taken into account. • The majority of respondents acknowledged that the time horizon for the adjustment programme was not appropriate, and too short in the first programme, while more reasonable in the others two programmes. Although political events during the second adjustment programmes derailed the progress in the achievement of the objectives.
*To what extent was **the approach to debt restructuring** appropriate,* • *timing of decisions and delivery,* • *scope of measures and* • *link to policy conditionality?*	• It was noted that the agreement around PSI took very long time during which the economy continued to fall. • OSI was broadly considered to have had a clear positive effect, while the judgement around the impact of PSI is not clear-cut. Very negative for some, still having a positive impact on debt level for others. It was remembered that OSI was conditional on PSI.
*To what extent did success or failure/delay of overall **reform implementation** have an impact on debt sustainability?*	• The majority of the respondents answered that the reform process affected debt sustainability to a very large extent. • Among those: - The majority agreed on the fact that the structure of the economy did not improve and growth performance was very poor; - Others claimed that delays and failures in the process resulted in a strong opposition against the programmes; - Only few stakeholders found a causal link between the delays/failures in the privatisation plan and the lack of materialisation in expected debt reduction.

*How did **PSI** affect the economy and the financial sector in Greece?*	• The majority of the respondents answered that the impact of PSI on the economy was very large, because of the negative reputational/confidence effect and persistent high public debt. • On the impact of PSI on financial sector there was no clear agreement. The majority found a large impact, but among them: - Half answered that the impact was large because it drove deposit outflows; - The other half claimed that the impact was very large because of the general negative confidence effort on top of losses
*Approach to debt sustainability help Greece regaining sustainable **market access**?*	• The majority of the respondents answered that the combination of PSI and OSI resulted in a reduction of debt level, longer maturities and lower interest rates.

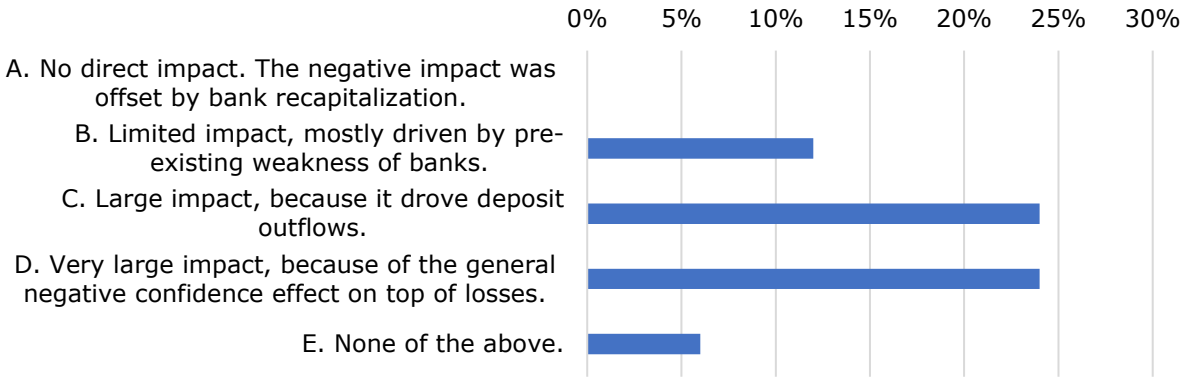
Was the trade-off between debt reduction and fiscal adjustment considered?



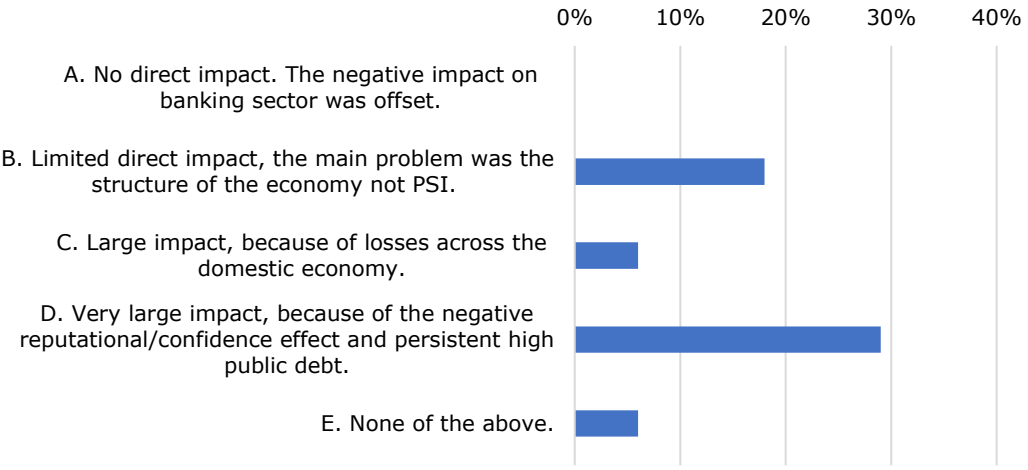
Was the time horizon of the adjustment programme(s) appropriate?



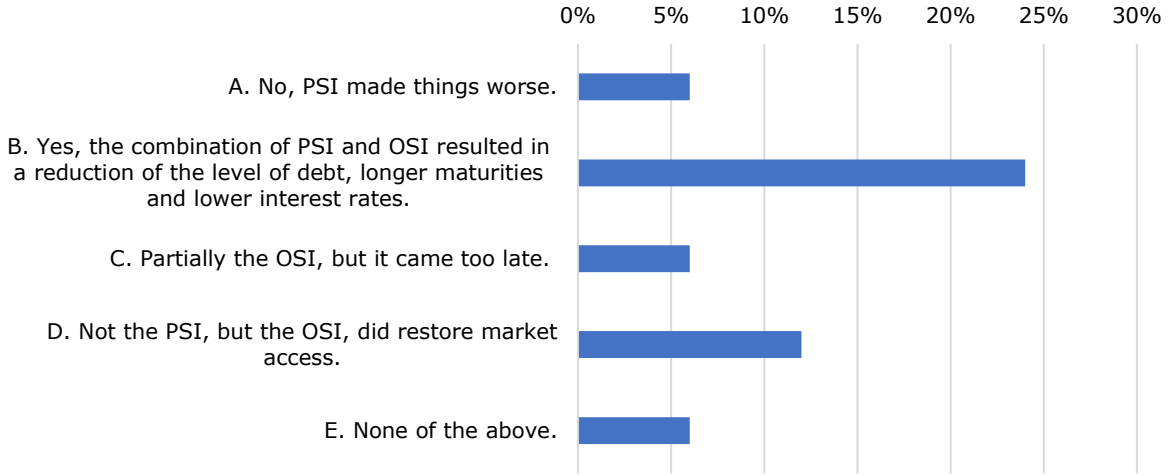
Did the PSI have an impact on the financial sector?

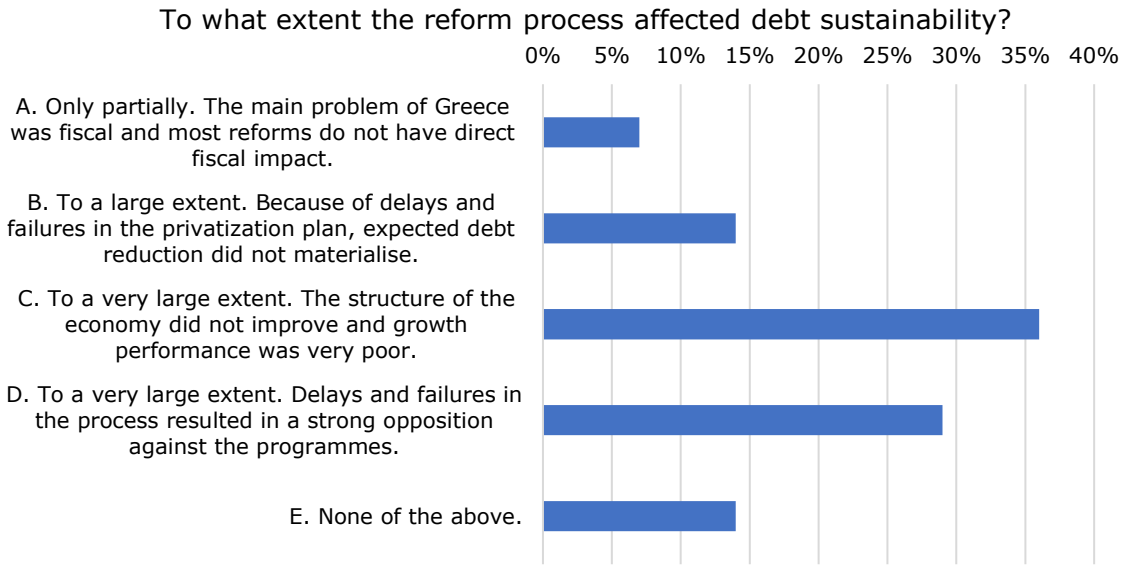


Did the PSI have a large impact of the economy?



Was debt restructuring decisive to restore market access?




To what extent the reform process affected debt sustainability?
0%
5%
10%
15%
20%
25%
30%
35%
40%
A. Only partially. The main problem of Greece was fiscal and most reforms do not have direct fiscal impact.
B. To a large extent. Because of delays and failures in the privatization plan, expected debt reduction did not materialise.
C. To a very large extent. The structure of the economy did not improve and growth performance was very poor.
D. To a very large extent. Delays and failures in the process resulted in a strong opposition against the programmes.
E. None of the above.

Annex 4. Scoping interview guideline

Seven scoping interviews were conducted with public authority's officials who were directly involved in the Greek adjustment programme Public Authorities: European Commission, IMF and the ESM. In addition, a former Greek minister, a former Commissioner and representative of the European Trade Union Institute. The guideline used for the semi-structured interviews follow below.

Debt Sustainability Analysis

1. To what extent was the approach for assessing debt sustainability in the programmes appropriate?

2. Are you aware of the DSA methodology used? What are the key assumptions? What the key shortcomings?

3. Do you think the trade-off between the debt reduction needs and the ambition of the primary surplus was well assessed?

4. How important was the time horizon?

Debt restructuring and PSI

5. To what extent was the approach to debt restructuring appropriate?

6. Was the timing right?

7. Were expectations correct?

8. Were the actual measures and modalities compatible with expectations?

9. Was the restructuring properly linked to the policy conditionality?

10. What was the impact of PSI on the domestic economy?

11. What was the impact of PSI on the domestic financial sector?

12. Did the programme account for these effects?

13. What are in your opinion the essential aspects of the financial sector that are needed to assess debt sustainability?

14. What are the most important political economy elements that we need to include in the assessment of debt sustainability?

Reforms

15. Do you think that the reform implementation / or lack reform implementation had an impact on debt sustainability?

    a. Can you give an example?

16. Do you think the (right or wrong) sequencing of the reforms played a role in affecting debt developments?

    a. Can you give an example?

    b. How should have been different?

Market access

17. Did the programmes help Greece to regain sustainable market access?

    a. How?

18. Do you have a particular counterfactual exercise in mind that could be conducted in order to better assess the links between the programmes and debt sustainability?

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