



# GREECE

May 2016

## PRELIMINARY DEBT SUSTAINABILITY ANALYSIS— UPDATED ESTIMATES AND FURTHER CONSIDERATIONS

This preliminary draft DSA was prepared by Fund staff in the course of policy discussions with the authorities and European institutions in recent months. This document was distributed to the Executive Board of the IMF in the morning of May 23, 2016, but was neither discussed nor approved by the IMF's Executive Board.

13 points

3 boxes

Regression results

DSA Assessment tables

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# Greece: Preliminary Debt Sustainability Analysis—Updated Estimates and Further Considerations, May 2016

## I. BACKGROUND

1. **The changes to staff's DSA discussed in this note are an extension of the gradual evolution in the DSA that has taken place since the approval of the first program in May 2010.**

The key features of this evolution relevant to the understanding of the updated DSA are as follows:

- **Debt was deemed sustainable, but not with high probability, when the first program was adopted in May 2010.** Public debt was projected to surge from 115 percent of GDP to a peak of 150 percent of GDP, primarily because the expected internal devaluation implied declining nominal GDP while fiscal deficits were expected to add to the debt burden, but also because of the decision to forgo a private sector debt restructuring (PSI). The latter reflected concerns about systemic risks to the euro-zone in the absence of a firewall, among other considerations. Only under assumptions of ambitious long-term targets for growth and the primary surplus and, later, for privatization did the DSA suggest that debt could become sustainable. Staff did not consider this likely with high probability, and Board approval of the program was preceded by a change in the Exceptional Access policy, allowing Fund support in cases of high risks of international systemic spillovers even if debt was not deemed sustainable with high probability.
- **The much deeper-than-expected recession necessitated significant debt relief in 2011-12 to maintain the prospect of restoring sustainability.** Private creditors accepted large haircuts (concerns about contagion had largely subsided by then with the creation of a firewall); European partners provided very large NPV relief by extending maturities and reducing and deferring interest payments; and Fund maturities were lengthened by replacing the SBA with an EFF. European partners also pledged to provide additional debt relief—if needed—to meet specific debt-to-GDP targets (of 124 percent by 2020 and well under 110 percent by 2022). Critically for the DSA, the Greek government at the time insisted—supported by its European partners—on preserving the very ambitious targets for growth, the fiscal surplus, and privatization, arguing that there was broad political support for the underlying policies. Despite the significant relief and still very ambitious assumptions, the DSA's baseline debt trajectory was considerably worse than projected in 2010. In this context, and taking into account the new commitments by European partners to provide additional debt relief, if needed, staff maintained its assessment that debt was sustainable, but not with high probability.
- **Serious implementation problems caused a sharp deterioration in sustainability, raising fresh doubts about the realism of policy assumptions, especially from mid-2014.** The authorities' hoped-for broad political support for the program did not materialize, and implementation problems became evident soon after approval of the EFF, causing long delays in concluding reviews, with only 5 of 16 originally scheduled reviews eventually completed. The problems mounted from mid-2014, with across-the-board reversals after the change of

NPV

government in early-2015. Staff's revised DSA—published in June 2015—suggested that the agreed debt targets for 2020-2022 would be missed by over 30 percent of GDP. Critically, this deterioration reflected largely an increase in financing needs, as there were only modest downward revisions to the DSA's ambitious targets, because the new government insisted—like its predecessor—that it could garner political support for the necessary underlying reforms. Staff warned that growth and primary balance assumptions still remained very ambitious and imparted significant downside risks to the outlook in view of the evident implementation problems, and that key targets would have to be lowered in a program that the Fund could support unless upfront actions suggested political support for the ambitious underlying policies.

2. **Developments since last summer suggest that a realignment of critical policy and DSA assumptions can no longer be deferred if the DSA is to remain credible.** While there certainly has been progress in some areas under the new program that was put in place in August 2015 with support by the ESM, and growth and primary balance outturns last year were better than expected, the government has not been able to mobilize political support for the overall pace of reforms that would be required to retain the June 2015 DSA's still ambitious assumptions of a dramatic, rapid, and sustained improvement in productivity and fiscal performance. In all key policy areas—fiscal, financial sector stability, labor, product and service markets—the authorities' current policy plans fall well short of what would be required to achieve their ambitious fiscal and growth targets. Consequently, staff believes that a realignment of assumptions with the evident political and social constraints on the pace and scope of adjustment is needed, and it has revised the DSA assumptions for the primary balance and growth as follows:

- **Primary surplus:** The fiscal relaxation that has taken place since mid-2014 reflects in large part the fact that the adjustment in previous years had increasingly relied on hiking already high tax rates levied on a narrow base and on ad hoc spending cuts not supported by underlying structural reforms, as detailed in Box 1. With tax compliance rates falling precipitously and discretionary spending already severely compressed, staff believes that the additional adjustment needed to allow Greece to run sustained primary surpluses over the long run can only be achieved if based on measures to broaden the tax base and lowering outlays on wages and pensions, which by now account for as much as 75 percent primary spending. Recent discussions have confirmed that there is little evidence of political support for such measures, and the proposed automatic mechanism triggering ex-post across-the-board spending cuts is not an effective substitute for durable reforms. This suggests that it is unrealistic to assume that Greece can undertake the additional adjustment of 4½ percent of GDP needed to base the DSA on a primary surplus of 3½ percent of GDP.

Even if Greece through a heroic effort could temporarily reach a surplus close to 3½ percent of GDP, few countries have managed to reach and sustain such high levels of primary balances for a decade or more, and it is highly unlikely that Greece can do so considering its still weak policy making institutions and projections suggesting that unemployment will remain at double digits for several decades. In this regard, staff notes that the small primary surplus that emerged in

2013 proved short-lived, as two successive governments, spanning the full political spectrum, soon yielded to pressures to spend it.

In view of this, staff believes that the DSA should be based on a primary surplus over the long-run of no more than 1½ percent of GDP. This target would in staff's view be within the realm of what is plausible, although it remains ambitious in as much as it requires the fiscal adjustment to be underpinned by much stronger support for reforms and much stronger resolve by policy making institutions, in Greece and at the European level, than currently evident.

- **Growth:** Staff believes that the continued absence of political support for a strong and broad acceleration of structural reforms suggests that it is no longer tenable to base the DSA on the assumption that Greece can quickly move from having one of the lowest to having the highest productivity growth rates in the eurozone. Two concerns stand out in this regard, as detailed in Boxes 2 and 3:

(i) As to the financial sector, the bank recapitalization completed in 2015 was not accompanied by an upfront governance overhaul to overcome longstanding problems, including susceptibility to political interference in bank management. Moreover, staff believes that, in the absence of more forceful actions by regulators, and in view of the exceptionally large level of NPLs and high share of Deferred Tax Assets in bank capital, banks will be burdened by very weak balance sheets for years to come, suggesting that they will be unable to provide credit to the economy on a scale needed to support very ambitious growth targets.<sup>1</sup>

(ii) As to broader structural reforms, the further postponement of reforms to the collective dismissals and industrial action frameworks to the fall of 2016—overdue since 2014—and the still extremely gradual pace at which Greece envisages to tackle its pervasive restrictions in product and service markets are also not consistent with the very ambitious growth assumptions used hitherto.

Against this background, staff has lowered its long-term growth assumption to 1¼ percent, even as over the medium-term growth is expected to rebound more strongly as the output gap closes. Here as well the revised assumption remains ambitious in as much as it assumes steadfastness in implementing reforms that exceeds the experience to date, such that Greece would converge to the average productivity growth in the euro-zone over the long-term.

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<sup>1</sup> The literature suggests that high levels of non-performing loans adversely affect the pace of economic recovery (Klein, 2013, Nkusu, 2011). Furthermore credit constraints are especially likely to affect mostly high-leveraged, low growth firms operating in concentrated banking systems (Dimelis et. al. 2016), features that are characteristic to Greece.

3. **Other assumptions underpinning the DSA are detailed in Box 3.** Privatization assumptions remain broadly unchanged relative to the June DSA reflecting the dismal record achieved so far. Moreover, given that financial sector reforms have left the governance and NPL problems largely unresolved, staff expects no receipts from bank privatization (also given the significant reduction in the state's stake in the banks following the last recapitalization) and in fact projects additional contingent liabilities from the banking sector to materialize in the future; an allowance has been made for this in the DSA of around €10 billion. Finally, market interest rates are assumed to remain elevated immediately following the program period and to respond endogenously to debt dynamics, as the literature suggests.

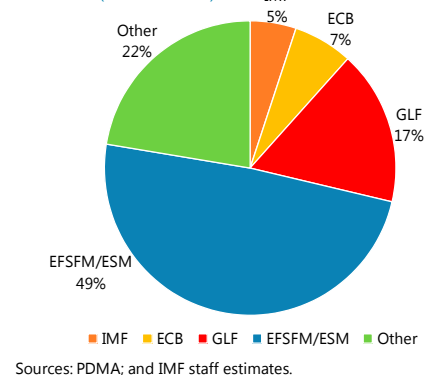
literature

4. **Staff believes that the revised program targets remain sufficiently ambitious to warrant continued support from Greece's European partners.** At the same time, it is essential that official financing be made contingent on credible policy commitments. The Fund's exceptional access policy requires strong prospects for program success, including adequate institutional and political capacity to deliver the required adjustment. With the revised growth and primary balance targets, staff considers that this criterion could be met.

## II. METHODOLOGY AND OBJECTIVES

5. **As explained in the June 2015 DSA, staff believes that the debt targets and framework agreed in 2012 are no longer meaningful for assessing debt sustainability.** Specifically, staff has recommended switching from a stock (debt-to-GDP) to a flow (gross financing needs, GFN) framework, which can capture better Greece's true debt burden, given that the bulk of Greece's debt is provided by European partners on highly concessional terms. (Such debt accounts for around two thirds of the total, or over 120 percent of GDP, with weighted average grace and maturity periods of around 15 and 40 years, respectively, and with a weighted average floating interest rate of around 1.2 percent). To properly reflect these concessional terms under the new GFN framework, the projection horizon needs to be considerably longer than under the stock-of-debt framework. Specifically, in the June 2015 DSA, staff had proposed a horizon until 2060, roughly matching the maturities of European loans. Moreover, staff stressed that the level and path of the debt ratio remains an important debt sustainability consideration, as it is a key determinant of the interest rate at which Greece would refinance itself from the markets. European partners have supported this framework, including because it is more in line with Europe's strong preference for avoiding haircuts while being open to significant reductions in NPV terms by extending maturities and reducing interest payments.

Greece: Composition of General Government Debt, End-2015 (Percent of total)



NPV

6. **Under the GFN framework, achieving debt sustainability requires maintaining GFN at low levels for a prolonged period to allow debt to decline sufficiently before Greece can return to markets on a larger scale.** It is a question of judgment how low financing needs would need to be and for how long they should be maintained to ensure that Greece can return to the markets on sustainable terms. Ultimately, as argued by staff in the June 2015 DSA, any debt restructuring solution would need to achieve two key objectives. First, it should maintain gross financing needs well within the 15-20 percent of GDP thresholds defined in the MAC DSA for emerging-advanced economies throughout the projection period (2060). The lower bound would need to be binding at least for the foreseeable future, until Greece's institutional framework is sufficiently strengthened to bring it to the standard of advanced economies. Second, it should ensure that debt is on a sustained downward path. In other words, solutions that provide only temporary flow relief but do not deliver a declining debt path over the projection horizon would not be consistent with sustainability.

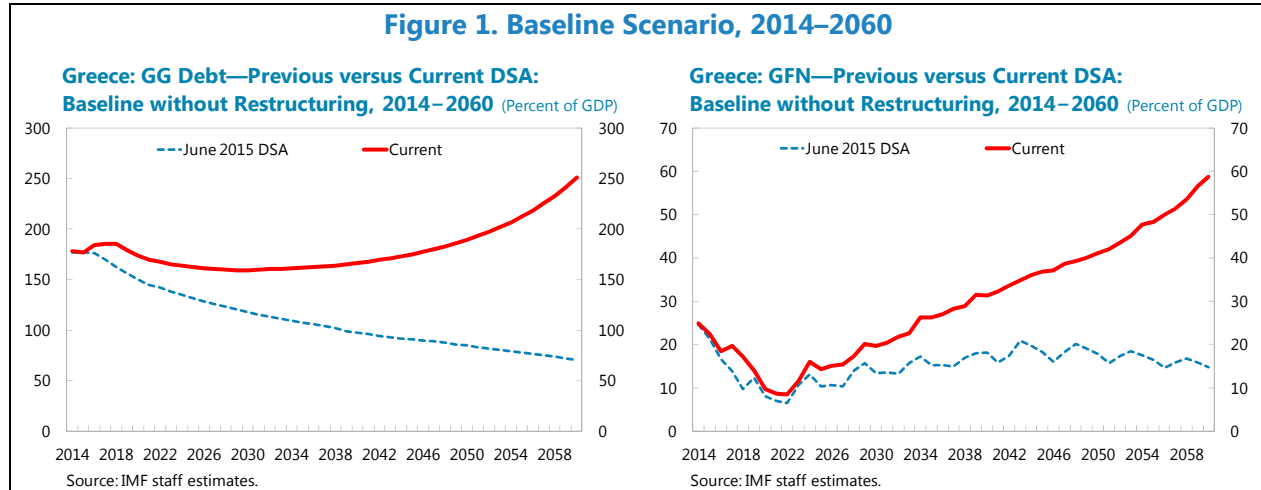
7. **Staff's analysis suggests that satisfying these objectives would require gross financing needs to remain not only below 15 percent of GDP, but below 10 percent until about 2040, rising to 20 percent by 2060.** This is similar to staff's conclusion in the June 2015 DSA. The low GFN until 2040 is essential to allow time for debt to decline sufficiently to permit borrowing at interest rates consistent with debt sustainability, such that the debt path can stay on a declining trend thereafter. For example, fixing financing needs at 15 percent of GDP until 2040 would entail an insufficient reduction in the debt level, as it would imply market financing at interest rates that would not be consistent with debt sustainability (both GFN and debt would embark on a rising trend after 2040).

### III. BASELINE PROJECTIONS AND RESTRUCTURING MODALITIES

8. **Under staff's baseline assumptions, there is a substantial gap between projected outcomes and the sustainability objectives noted above.** The revised projections suggest that debt will be around 174 percent of GDP by 2020, and 167 percent by 2022. The gap relative to the objectives under the new GFN framework is also very significant. Gross financing needs cross the 15 percent-of-GDP threshold already by 2024 and the 20 percent threshold by 2029, reaching around 30 percent by 2040 and close to **60 percent of GDP by 2060.** Debt is projected to decline gradually to just under 160 percent by 2030 as the output gap closes, but trends upwards thereafter, reaching around **250 percent of GDP by 2060,** as the cost of debt, which rises over time as market financing replaces highly subsidized official sector financing, more than offsets the debt-reducing effects of growth and the **primary balance surplus.**<sup>2</sup>

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<sup>2</sup> The debt-stabilizing primary balance can be approximated by  $(r - g)$  times the debt/GDP ratio, where  $r$  and  $g$  are the nominal interest rate and GDP growth rates, respectively. For example, for  $(r - g)$  around 2 and debt of around 100 percent of GDP, a primary balance of 2 percent would be needed to stabilize the debt (and a higher one to bring debt down). For higher debt-to-GDP ratios, the primary surpluses need to be higher to stabilize debt and even higher to bring debt down to safer levels.



9. **A substantial reprofiling of the terms of European loans to Greece is thus required to bring GFN down by around 20 percent of GDP by 2040 and an additional 20 percent by 2060, so as to satisfy the objectives noted above and maintain debt on a downward path.** The debt restructuring modality that could satisfy these conditions would need to be based on a combination of three measures. While there are trade-offs in calibrating these measures, one set of calibrations that would yield the required adjustment is as follows:

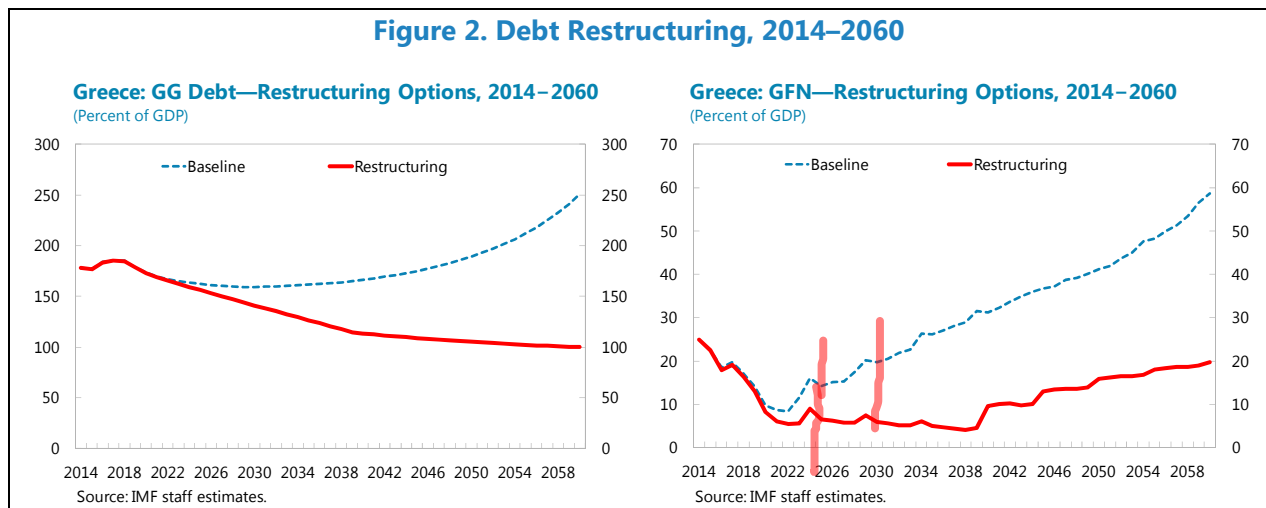
- **Maturity extensions:** An extension of maturities for EFSF, ESM and GLF loans of, up to 14 years for EFSF loans, 10 years for ESM loans, and 30 years for GLF loans could reduce the GFN and debt ratios by about 7 and 25 percent of GDP by 2060 respectively. However, this measure alone would be insufficient to restore sustainability.
- **Payment deferrals:** EFSF loans have already been extended before, and ESM loans have been provided with long grace and maturity periods. Extending the deferrals on debt service further could help reduce GFN further by 17 percent of GDP by 2040 and 24 percent by 2060, and—by allowing Greece to benefit from low ESM interest rates for longer—could lower debt by 84 percent of GDP by 2060 (This would imply an extension of grace periods on existing debt ranging from 6 years on ESM loans to 17 and 20 years for EFSF and GLF loans, respectively, as well as an extension of the current deferral on interest payments on EFSF loans by a further 17 years together with interest deferrals on ESM and GLF loans by up to 24 years.)<sup>3</sup> However, even in this case, GFN would exceed 20 percent by 2050, and debt would be on a rising path.
- **Fixed interest rate:** To ensure that debt can remain on a downward path, official interest rates would need to be fixed at low levels for an extended period, not exceeding 1½ percent until 2040. In this regard, the ESM could attempt to take advantage of the still favorable interest rate

<sup>3</sup> Interest on deferred interest accrues at a fixed rate of 1½ percent per year until 2040 after which it accrues at the long-run official rate of 3.8 percent.

environment by trying to lock in rates for the entire stock of EFSF/ESM loans at the current long-term market rates, in addition to eliminating the spreads currently applied to GLF loans. If the market for long-dated bonds cannot absorb the whole estimated stock of about €200 billion that would have to be placed during the duration of the program, member states would need to find another way to ensure that the cost of refinancing Greek debt in an environment where long-term rates gradually normalize is not placed on Greece. Thus, the fixing of the interest rates would in effect require a commitment by member states to compensate the ESM for the losses associated with fixed interest rates on Greek loans, or any similar commitment. This would clearly be highly controversial among member states in view of the constraints—political and legal—on such commitments within the currency union. Adding this measure to the two noted above helps to reduce debt by 53 percent of GDP by 2040 and 151 percent by 2060, and GFN by 22 percent by 2040 and 39 percent by 2060, which satisfies the sustainability objectives noted earlier (Figure 2).

**NPV**

10. **The proposed debt restructuring generates savings of around 50 percent of GDP in net present value (NPV) terms over the projection horizon.**<sup>4</sup> Of this, 18-24 percent of GDP (€31-42 billion) is due to the fixing of the interest rate, while the remainder is due to the deferral of payments and maturity extensions. Importantly, extended payment and interest deferrals without fixing the underlying interest rate would not suffice, as the stock of deferred interest would compound at relatively high floating rates, which would further expose Greece to interest rate risk.



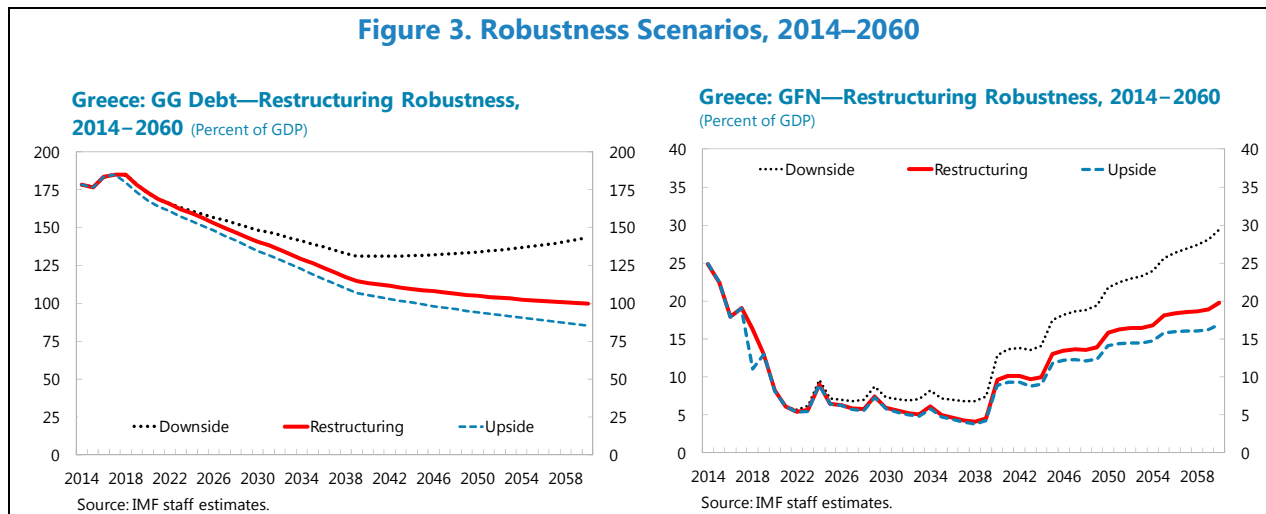
<sup>4</sup> An indicative discount rate of 3-5 percent is used for the NPV calculations, which are made for the projection horizon (2016-60).



#### IV. SENSITIVITY ANALYSIS AND CONSIDERATIONS ON THE IMPLEMENTATION OF **DEBT RELIEF**

11. **Even under the proposed debt restructuring scenarios, debt dynamics remain highly sensitive to shocks.** Two shock scenarios are considered to assess the robustness of staff's proposed restructuring scenario:

- **Upside scenario:** Stronger-than-expected policies, resulting in somewhat higher growth (1½ percent) and no additional bank recapitalization needs, combined with debt restructuring as proposed by staff, would lead to lower Gross Financing Needs (remaining near 15 percent of GDP by 2060), and a faster reduction in debt, which generates a virtuous cycle of lower market interest rates and lower debt levels over the long run. This scenario illustrates the importance of advancing structural and financial sector reforms that can enhance productivity growth and ensure that the banking sector can support the economy over the long term.
- **Downside scenario:** If policies were weaker than expected, resulting in lower long-run growth (stabilizing at 1 percent) and a lower primary balance (stabilizing at 1 percent of GDP), debt sustainability would no longer be ensured even under staff's restructuring proposal with extensive payment deferrals and fixed interest rates. In this case, both the debt and gross financing needs dynamics would become unstable and rising over time, as the payment deferrals would no longer be sufficient to ensure that Greece can access markets at rates consistent with sustainability. To ensure sustainability under this scenario according to staff's proposed criteria, the interest on EFSF/ESM loans and deferred interest would need to be reduced to zero from the current low levels (in essence implying interest-free loans) until around 2050. Considering that even staff's assumption of a primary surplus of 1.5 percent for many decades to come is still quite optimistic by most metrics, this scenario illustrates the magnitude of the downside risks that remain in staff's DSA.



12. **The implementation of debt relief should be completed by the end of the program period.** Providing an upfront unconditional component to debt relief is critical to provide a strong and credible signal to markets about the commitment of official creditors to ensuring debt sustainability, which in itself could contribute to lowering market financing costs. An upfront component can also help garner more ownership for reforms. At the same time, in view of the uneven record of policy implementation on the part of Greece, staff understands and supports the wish of Greece's European partners to make further relief contingent on program implementation.<sup>5</sup> However, debt relief conditional on policy implementation should not extend beyond the program period, as this would be inconsistent with the key requirement of a Fund program that adjustment be completed within the program period in order to catalyze investor confidence. In this case, where concerns about Greece's membership in the currency union weigh particularly heavy on confidence, it is critical to decisively end speculations in this regard by ensuring that measures needed to achieve sustainability are not dependent on assessment of program implementation for many years to come. The following modalities for the delivery of debt relief could be considered:

- **Short Term:** The next tranche of ESM financing could be provided on the new terms (lengthened maturity, payment deferrals, and fixed interest) to provide a strong signal to markets about European partners' commitment to deliver on all the elements of the restructuring.
- **Medium Term:** Fixing interest rates and deferrals of payments and maturity extensions should be implemented during the program period contingent on satisfactory progress with program implementation. For example, at the end of each successful year of program implementation, debt service, maturities, and interest rates corresponding to one third of the EFSF/ESM/GLF loan tranches could be restructured, with priority given to tranches with shorter maturities. Regarding the fixing of interest rates on existing loans, this could be implemented by the ESM by shifting its funding strategy from short-term to long-term financing, making use of both direct bond issuances and derivatives (swaps and options), which a number of AAA sovereigns have successfully done. If portions of the refinancing cannot be done fully through the markets, then member states might need to make additional commitments (see above).
- **Long Term:** To ensure sustainability with a high probability, provided that Greece borrowing from the IMF exceeds the Exceptional Access threshold, an automatic mechanism linking future debt service to non-policy related factors (such as GDP shocks) could be considered upon successful completion of the program to address vulnerability to shocks after the program period. This mechanism could take the form of instruments that incorporate symmetric adjustments to debt service in the event of GDP shocks, providing both protections to the debtor and some upside potential to creditors.

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<sup>5</sup> For example, for low income countries, the HIPC/MDRI initiatives provide for debt relief contingent on a set track record of program implementation.

13. **Staff's DSA takes into account the unique features associated with Greece's membership in the euro-zone.** The pledge by European leaders—first provided at the July 2011 Summit—to provide additional support, if needed, until full market access has been restored, provided the authorities adhere to their program, has been critical for staff's assessment that debt could be maintained on a sustainable path despite being projected to remain significantly above commonly accepted sustainability thresholds well into the future. The unprecedented support already provided by the ECB (through ELA) and the **ESM (through NPV relief)** attests to the importance of such commitments, as reflected in periodic signs of relative deposit stability and nascent recovery in market access during the program period. However, as experience also suggests, such commitments are not sufficient when adherence to the program falters, as evident in what have also been protracted periods of interruption in ESM (and IMF) disbursements and, most dramatically, in the loss of access to the ECB last summer, with the attendant imposition of capital controls. Thus, it is critical for the credibility of the DSA that it be based on ambitious but realistic policy commitments from the authorities. Equally important is the need for **frontloaded debt relief**, to be fully delivered during the program, and with an **automatic debt relief** mechanism after the program to ensure sustainability with high probability provided that Greece borrowing from the IMF exceeds the Exceptional Access threshold.

### Box 1. A Sustainable Primary Balance for Greece

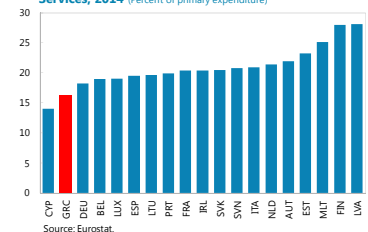
Staff has revised Greece's long-run primary balance to 1½ percent of GDP from 3½ percent. This represents a more realistic assessment of Greece's ability to deliver on fiscal policy commitments, in light of reform fatigue after several years of consolidation. The revised primary balance is also more in line with Greece's own historical experience and with cross-country evidence.

**Greece continues to face a daunting fiscal consolidation challenge.** After seven years of recession and a structural adjustment of 16 percent of GDP, Greece has only managed to achieve a small primary surplus in 2015, and this due to sizeable one-off factors. This is still far away from its ambitious medium-term primary surplus target of 3½ percent of GDP. Reaching this target still requires measures of some 4½ percent of GDP. Low-hanging fruit have been exhausted, and the scope for new significant measures is limited.

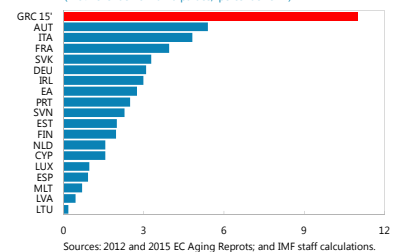
**Why does Greece require further adjustment?** Without further measures, Greece will fall back into primary deficit over the medium run (of around 1 percent of GDP), with attendant consequences for debt. This is due to several factors:

- First, revenue is expected to decline relative to GDP, as: (i) the recovery is expected to rely on investment and exports, which are not tax rich; (ii) almost half of social contributions (e.g. self employed) are not linked to income, and property taxes are not linked to market prices; and (iii) one-off revenues from bank liquidity support will taper off.
- Second, spending pressures are likely to re-emerge, reflecting the fact that past spending cuts have not been supported by reforms. Spending on goods and services fell to 16 percent of primary spending (lower than its pre-crisis level of 19 percent and the euro-area average of 22 percent). Health spending has been severely compressed to 4½ percent of GDP, which is below euro area average of 7 percent of GDP, despite the fact that Greece faces one of the highest old-age dependency ratios.
- The pension system is unaffordable and unsustainable. Greece's current spending on the pension system is by far the highest in the euro-area (17½ percent of GDP), with annual transfers to the system of around 10 percent (2½ in the euro-area). This reflects very generous pensions to existing retirees (as noted below, the recent reform aims to address this problem over the long run by reducing benefits of future retirees).
- The tax system offers a large implicit tax-free threshold which exempts more than half of wage and pension earners from income tax (compared to 9 percent euro-area average). This leads to a highly skewed income tax distribution, with the top decile contributing 60 percent of the tax revenue. Consequently, collection rates have been declining steadily despite efforts to strengthen tax administration, and tax debt has reached 50 percent of GDP, the largest in the euro-area.

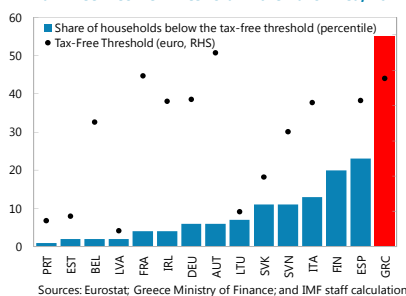
General Government Expenditure on Goods and Services, 2014 (Percent of primary expenditure)



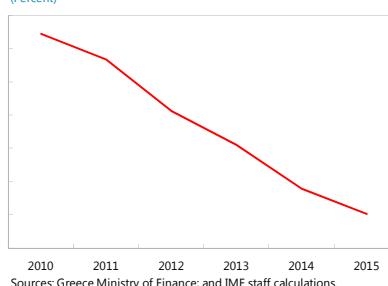
State Transfer to the Pension System, 2013 (Excl. revenue from third parties; percent of GDP)



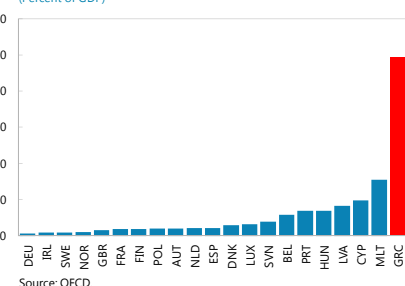
Tax-Free Income Threshold in the Euro Area, 2014



Greece: Current Tax Collection Rate, 2010–2015 (Percent)



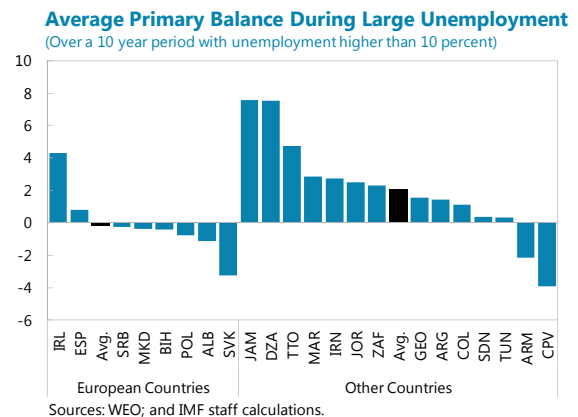
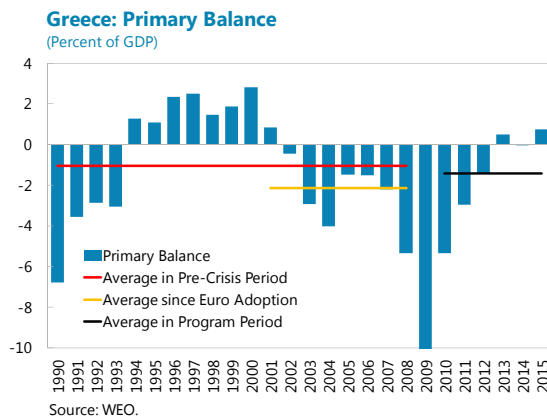
Tax Debt (Percent of GDP)



### Box 1. A Sustainable Primary Balance for Greece (concluded)

**In this context, achieving a primary surplus of 3½ percent of GDP would require deep structural reforms to reduce pension benefits and broaden tax bases.** However, the authorities' policy plans suggest that such comprehensive reforms do not have the necessary political and social support. In this regard, the authorities' new income tax reform places an even higher tax burden on the top deciles, while broadening the base only by 2 percentage points, while the new pension reform reduces spending only marginally (by 0.6-0.9 percent of GDP) by 2018, leaving main pension benefits unchanged. Other fiscal measures in their adjustment package are largely based on further tax hikes.

**Historically, Greece has been unable to sustain primary surpluses for prolonged periods.** During the 1990s, Greece was able to maintain a surplus of 1¾ for eight years. But over a longer period prior to the crisis, the primary deficit averaged 1 percent of GDP, and widened to 2 percent of GDP after euro adoption. During the European and IMF supported programs, the primary deficit averaged 1½ percent of GDP.



**Cross-country evidence also shows that a 3½ percent of GDP primary surplus is difficult to achieve and sustain in the long run especially after long recessions and when faced with high structural unemployment.** In a sample of 55 countries in the last 200 years, there have been only 15 episodes of recessions longer than 5 years, and no country sustained a primary surplus larger than 2 percent of GDP after such a long period of negative growth. Greece has experienced a recession of seven years. Among the countries that have experienced double-digit unemployment rates since 1980, only four (out of 22) managed to maintain a primary balance higher than 3 percent of GDP for 10 years, and only two if commodity exporters are excluded. Looking at the more recent history, very few countries have managed to sustain high primary balances (Table 1). In the eurozone, only two countries (Ireland and Belgium) managed to sustain primary balances of at least 3½ percent of GDP for longer than a decade, and only Ireland was able to do so with double digit unemployment rates. The projection that Greece will have such double digit unemployment rates until the middle of the century must temper assumptions regarding the sustainability of very high primary surpluses.

**Table 1. Large Fiscal Consolidations: Primary Surpluses**  
(Percent of GDP)

Country	Period with high PB 1/	Years maintaining high PB	Average primary surplus
Ireland	1998-2007	20	3.7
Belgium	1990-2008	19	4.1
Denmark	1985-1992	8	3.9
Denmark	1999-2008	10	3.9
Italy	1996-2003	8	3.6
Finland	2000-2008	9	4.0
Sweden	2000-2001	2	4.2
Canada	1997-2006	10	3.6
Mexico	1983-2001	19	4.0
South Africa	1999-2000	2	3.5
South Africa	2006-2007	2	3.6
Bulgaria	1994-2008	15	4.4
Turkey	2000-2008	9	4.6
Brazil	2004-2008	5	3.5
Argentina	2004-2006	3	3.6

Source: WEO.

1/ The period with high PB is defined as the period starting from the year with the PB equal to or higher than 3.5 percent of GDP to the year that 1) the PB is positive and 2) the average of PB from the beginning year equals to or higher than 3.5 percent of GDP.

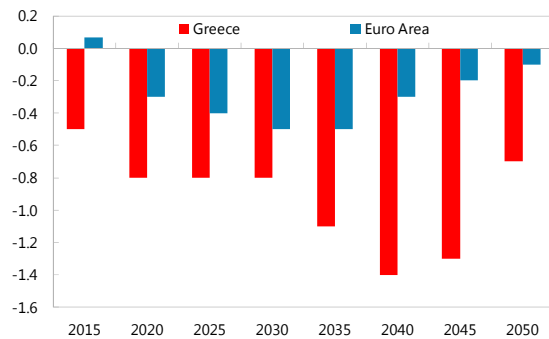
## Box 2. What is Driving Greek Growth in the Long-Term?

Long-run growth depends on three factors: (i) labor force developments; (ii) capital accumulation; and (iii) total factor productivity (TFP). In the face of significant demographic challenges, which imply a decline in working-age population over time, and investment rates that are unlikely to return to the unsustainable pre-crisis levels, total factor productivity (TFP)—driven by structural reforms—will be the main driver of growth. Given Greece's uneven track record of reform implementation, long-term growth has been revised down to 1¼ percent.

**The contribution of labor to growth is expected to be negative.** Demographic projections suggest that working age population will decline by about 10 percentage points by 2060. At the same time, Greece will continue to struggle with high unemployment rates for decades to come. Its current unemployment rate is around 25 percent, the highest in the OECD, and, after seven years of recession, its structural component is estimated at around 20 percent. Consequently, it will take significant time for unemployment to come down. Staff expects it to reach 18 percent by 2022, 12 percent by 2040, and 6 percent only by 2060; labor force participation is expected to increase gradually from 68 to around 73 percent, in line with the overall euro area trends. This suggests that the contribution of labor to long-run growth would be around -0.3 percent (derived as the change in employment growth, -0.6 percent per year, on average, times the share of labor in total income, which is around a half).

### Working Age (15-64) Population Prospects

(Percentage growth rate)

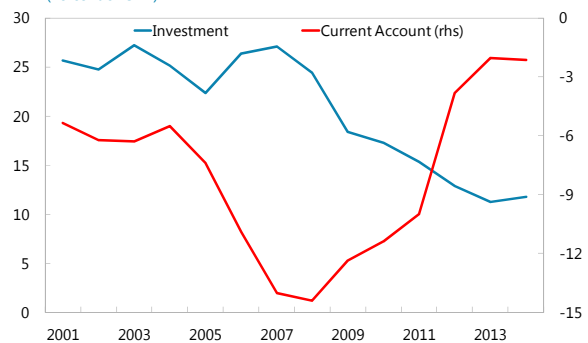


Sources: 2015 EC Aging Report; and IMF staff estimates.

**The contribution of capital to growth is likely to be positive, but small.** Investment as a share of GDP fell from around 20 to about 12 percent since the crisis. While investment is expected to recover over the medium term, including as a result of the need to replace capital and inventories, it is unlikely to return to the high pre-crisis levels, which relied on external financing (and hence an unsustainable current account). Moreover, the financial sector is unlikely to be able to support investment growth for the foreseeable future, as it still struggles with exceptionally high NPLs (44 percent, the second highest in the euro-zone). That said, staff expects the investment ratio to increase by about 30 percent to 17 percent of GDP over the medium and long run, a level still somewhat below the euro-area average. Therefore, the contribution of capital to growth is expected to be only around 0.5 percent (derived as the change in capital stock, of about 1 percent on average, after accounting for depreciation, times the share of capital in total income of about ½).

### Investment and Current Account

(Percent of GDP)

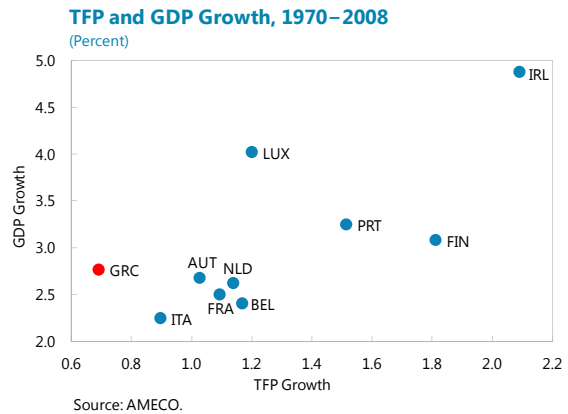


Source: Haver Analytics.

### Box 2. What is Driving Greek Growth in the Long-Term? (concluded)

**Growth, therefore, depends critically on the contribution of TFP, driven by structural reforms.**

From 1970 until 2008, average annualized TFP growth in the euro area was 1.2 percent. Greece had the lowest TFP (0.7 percent, including the unsustainable pre-crisis boom period). Looking forward, TFP is a function of the ambitiousness of structural reforms. However, the record of reform implementation in Greece over the past six years has been uneven. Despite numerous legislative initiatives, with the exception of the 2011 labor market reforms, the implementation of product market reforms has lagged. And the authorities' efforts and commitments in the new ESM program remain limited or incomplete. In this context, it is no longer plausible to assume that Greece could reach TFP rates well above the euro-area average. A more realistic assumption is that Greece's reform effort would be commensurate with bringing TFP growth to around 1 percent, slightly below the historical euro-area average. This, together with the contributions of labor and capital would imply a long-run growth rate of 1¼ percent. This is still slightly above the 1 percent rate projected in the 2015 EC's Ageing Report and requires continued structural reforms to be delivered at a much faster pace than achieved so far.

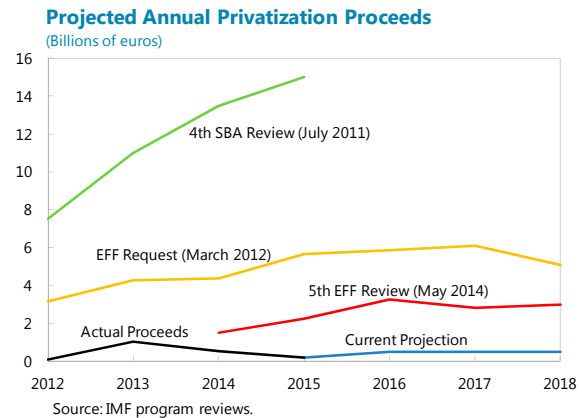


### Box 3. Key Assumptions in the DSA

**In addition to the fiscal and growth assumptions described in the text, the following elements underpin staff's baseline DSA projections:**

**Bank recapitalization needs:** The banking sector was recapitalized last December, following the SSM bank comprehensive assessment that identified capital needs of €15 billion. The ESM program envelope set aside €25 billion for bank recapitalization. Of this, €5.4 billion was utilized in December, with the remainder of needs covered by private capital. Despite successive recapitalizations—which added around €43 billion (over 24 percent of GDP) to public debt since 2010—non-performing loans continued to rise to 44 percent of total loans at end-December (the second highest in the euro-area), and banks' capital remains excessively reliant on deferred tax assets (DTAs), which amount to close to €20 billion and constitute half of capital (the highest in the euro-area). In this context, staff considers that a buffer of around €10 billion should be set aside to cover potential additional bank capital needs (this corresponds to about half of the amount of DTAs).

**Privatization proceeds:** Despite Greece's commitment to set up a €50 billion privatization fund as part of its ESM-supported program, staff has not revised its privatization projections since June, which amount to €5 billion during 2015-2030 (€2 billion by 2018). These projections are seen as more realistic, given Greece's poor record in meeting privatization targets under its previous programs. (Over the last five years, cumulative privatization proceeds amounted to only around €3 billion, or just 6 percent of overall targeted receipts of €50 billion and 12 percent of receipts expected through 2022.) The previous targets included significant expected receipts from bank privatization. However, as noted above, despite the large capital injections since 2010, the state has not been able to recover its investment in the banks; on the contrary, following the most recent recapitalization, the state's share in the banking sector has been reduced to around 20 percent (from around 60 percent). As a result, staff does not expect material proceeds from bank privatization.



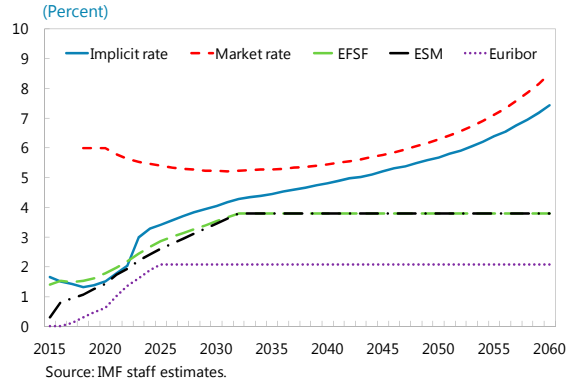
**Additional financing needs:** Tight financing conditions in the first half of 2015 resulted in the accumulation of significant arrears (which reached about €7 billion in total), including unprocessed pension and tax refund claims, and in a draw-down of the state's deposits. Moreover, the state resorted to borrowing from other state entities through repo operations (€10.4 billion). As in the June 2015 DSA, staff projects that arrears will be cleared and deposit buffers rebuilt to reach medium-term coverage of eight-months of forward-looking financing needs (€8 billion). In addition, the repo operations not to be covered by the Treasury Single Account would need to be unwound (€4.4 billion).



### Box 3. Key Assumptions in the DSA (concluded)

**Official interest rates:** Greece is benefitting from very low nominal official interest rates (weighted average of around 1.2 percent), supported by the exceptional relaxation in monetary conditions in the euro zone. Since the rates are variable, they are expected to revert to their historical averages over the long run as financing conditions normalize. The long-run risk-free rate is assumed at 3.8 percent and is based on the end-point medium-term forecast for euro area growth (1.5 percent), achievement of the ECB's price stability objective (1.9 percent), and a modest wedge over the sum of the two, consistent with what has been observed historically. Official interest rates eventually reach 3.8 percent approximately 7 years after the risk-free rate reaches its steady state level in 2025, reflecting that it takes time to roll over EFSF/ESM funding at higher rates.

Greece: Interest Rates, 2015–2060



$$176-60 = 116. \quad 116 \times 4 = 464. \quad 1.5 + 4.64 = 6.14$$

**Market interest rates:** Greece is assumed to access markets by end-program at an initial rate of 6 percent, reflecting a prolonged absence from markets, weak track record on delivering fiscal surpluses, and a substantial debt overhang. The rate is lower than the average yield during January-May 2016 by around 300 basis points, and is in line with the rates obtained by the country in 2014 when it was able to temporarily issue on the markets. It is consistent with a risk-free rate of 1-1½ percent in 2018 and a risk premium of 450-500 basis points (broadly consistent with an increase in the premium of four basis points for each 1 percent of GDP in debt above the Maastricht limit). Regression analysis suggests that staff's assumption is at the low (optimistic) end of estimates. A variety of empirical specifications regressing sovereign yields on key macroeconomic fundamentals (debt-to-GDP, debt-to-GDP squared, growth, primary balance, inflation, as well as country and time fixed effects) suggests a range of estimates between 6 and 13 percent (Table 1). As to its evolution over time, the rate is expected to fall/rise by four basis points for every one percentage point decline/increase in debt-to-GDP ratio, in line with the literature (Laubach, 2009, Ardagna, Casseli, Lane, 2004, Engen and Hubbard, 2004), up to a floor of 4½ percent (consistent with a small long-run risk free premium of 75 basis points).

Debt  
Overhang

Between 6 and 13 per cent

**Table 1. Regression Results**

	(1)	(2)	(3)	(4)	(5)	(6)
Gross debt (% of GDP)	0.0286*** (0.00655)	-0.140*** (0.0209)	0.0223** (0.0105)	-0.124*** (0.0293)	0.0445*** (0.0106)	-0.0338 (0.0218)
Gross debt (% of GDP) squared		0.000947*** (0.000113)		0.000814*** (0.000154)		0.000455*** (0.000113)
Primary balance (% of GDP)	0.0289 (0.0534)	-0.0463 (0.0464)	0.205*** (0.0581)	0.0397 (0.0626)	0.246*** (0.0473)	0.125** (0.0540)
Real GDP growth	-0.229*** (0.0766)	-0.163** (0.0658)	-0.380*** (0.0786)	-0.237*** (0.0780)	-0.801*** (0.0739)	-0.652*** (0.0796)
CPI inflation	0.731*** (0.151)	0.777*** (0.129)	0.518*** (0.161)	0.652*** (0.152)	-0.334** (0.164)	-0.147 (0.163)
Constant	0.416 (0.713)	6.640*** (0.962)	1.036 (1.134)	6.803*** (1.520)	3.995*** (1.082)	6.771*** (1.239)
Observations	187	187	187	187	187	187
R-squared	0.230	0.444	0.389	0.475	0.769	0.791
Country FE			YES	YES	YES	YES
Year FE					YES	YES

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

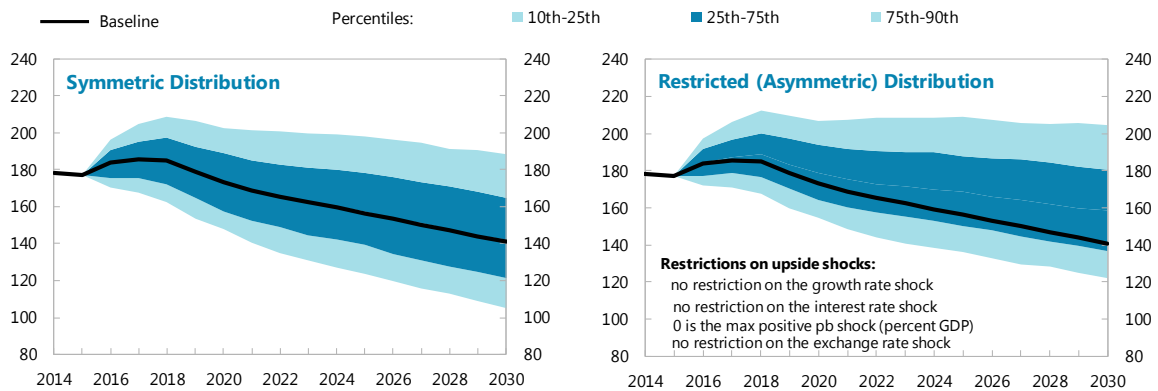
## Greece Public DSA Risk Assessment (Restructuring Scenario with Deferrals and Fixed Rates)

### Heat Map

Debt level 1/	Real GDP Growth Shock	Primary Balance Shock	Real Interest Rate Shock	Exchange Rate Shock	Contingent Liability shock
Gross financing needs 2/	Real GDP Growth Shock	Primary Balance Shock	Real Interest Rate Shock	Exchange Rate Shock	Contingent Liability Shock
Debt profile 3/	Market Perception	External Financing Requirements	Change in the Share of Short-Term Debt	Public Debt Held by Non-Residents	Foreign Currency Debt

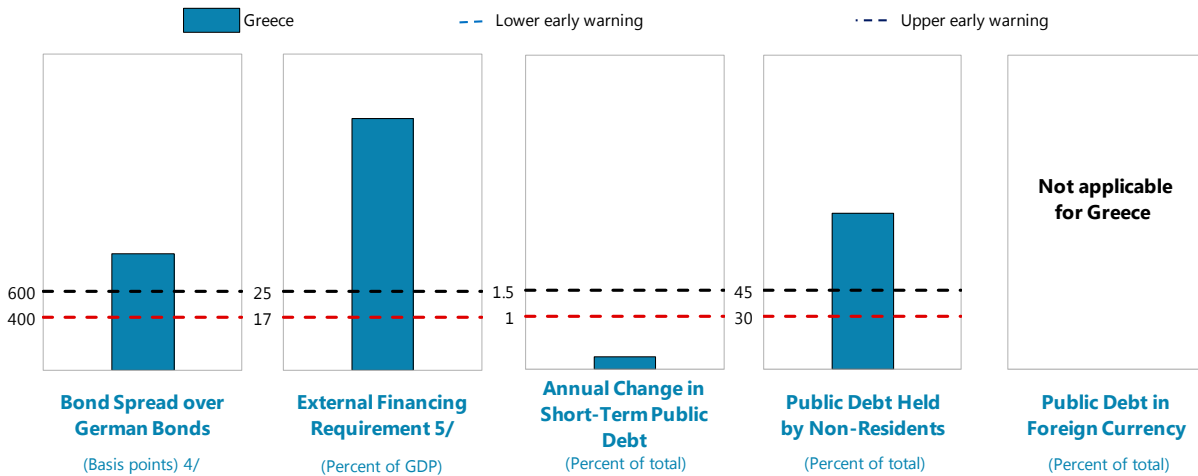
### Evolution of Predictive Densities of Gross Nominal Public Debt

(Percent of GDP)



### Debt Profile Vulnerabilities

(Indicators vis-à-vis risk assessment benchmarks)



Source: IMF staff.

1/ The cell is highlighted in green if debt burden benchmark of 85% is not exceeded under the specific shock or baseline, yellow if exceeded under specific shock but not baseline, red if benchmark is exceeded under baseline, white if stress test is not relevant.

2/ The cell is highlighted in green if gross financing needs benchmark of 20% is not exceeded under the specific shock or baseline, yellow if exceeded under specific shock but not baseline, red if benchmark is exceeded under baseline, white if stress test is not relevant.

3/ The cell is highlighted in green if country value is less than the lower risk-assessment benchmark, red if country value exceeds the upper risk-assessment benchmark, yellow if country value is between the lower and upper risk-assessment benchmarks. If data are unavailable or indicator is not relevant, cell is white.

Lower and upper risk-assessment benchmarks are:

400 and 600 basis points for bond spreads; 17 and 25 percent of GDP for external financing requirement; 1 and 1.5 percent for change in the share of short-term debt; 30 and 45 percent for the public debt held by non-residents.

4/ An average over the last 3 months, 17-Feb-16 through 17-May-16.

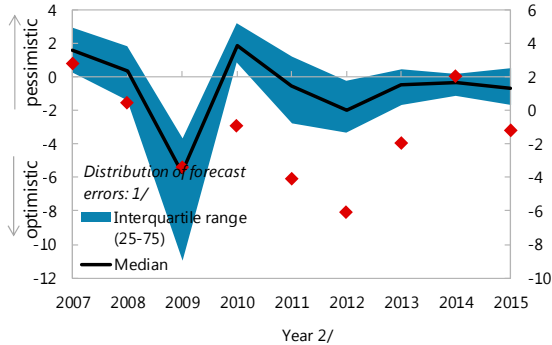
5/ Includes liabilities to the Eurosystem related to TARGET.

## Greece Public DSA - Realism of Assumptions (Restructuring Scenario with Deferrals and Fixed Rates)

### Forecast Track Record, versus program countries

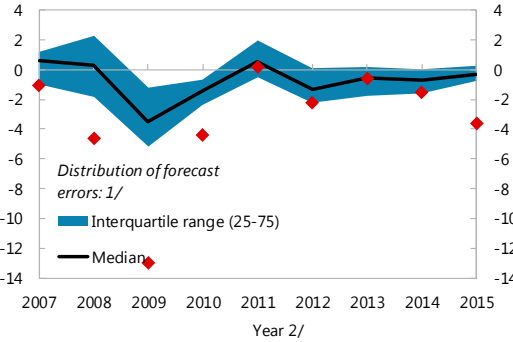
#### Real GDP Growth (Percent, actual-projection)

Greece median forecast error, 2007-2015: **-3.15**  
Has a percentile rank of: **3%**



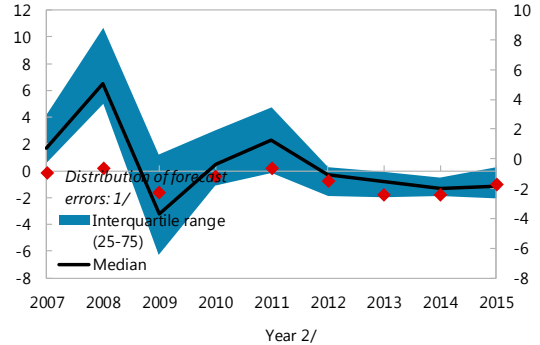
#### Primary Balance (Percent of GDP, actual-projection)

Greece median forecast error, 2007-2015: **-2.21**  
Has a percentile rank of: **16%**



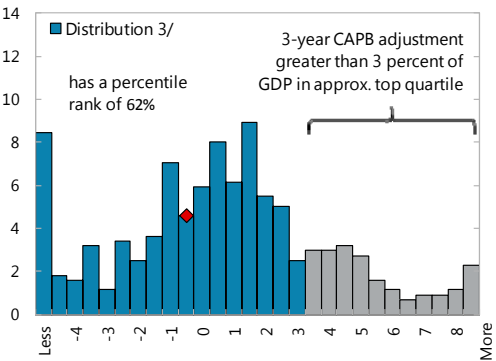
#### Inflation (Deflator) (Percent, actual-projection)

Greece median forecast error, 2007-2015: **-0.76**  
Has a percentile rank of: **21%**

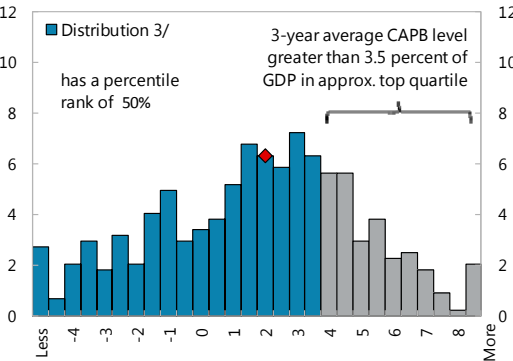


### Assessing the Realism of Projected Fiscal Adjustment

#### 3-Year Adjustment in Cyclically-Adjusted Primary Balance (CAPB) (Percent of GDP)



#### 3-Year Average Level of Cyclically-Adjusted Primary Balance (CAPB) (Percent of GDP)



Source : IMF Staff.

1/ Plotted distribution includes program countries, percentile rank refers to all countries.

2/ Projections made in the spring WEO vintage of the preceding year.

3/ Data cover annual observations from 1990 to 2011 for advanced and emerging economies with debt greater than 60 percent of GDP. Percent of sample on vertical axis.

Figure 1. Greece: Public Sector Debt Sustainability Analysis (DSA) - Restructuring Scenario with Deferrals and Fixed Rates

(Percent of GDP, unless otherwise indicated)

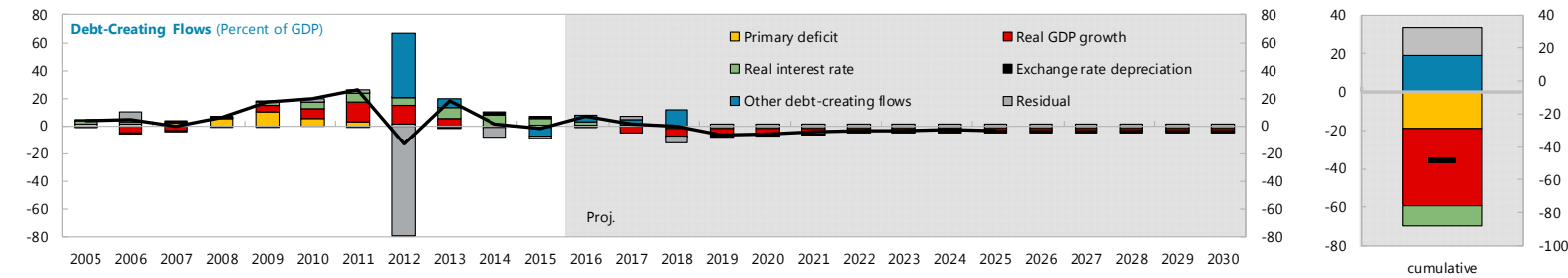
Debt, Economic and Market Indicators 1/

No  
DBRS

	Actual			Projections																As of May 17, 2016		
	2005–2013 2/	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Sovereign Spreads			
Nominal gross public debt	134.0	180.1	176.9	183.7	185.3	184.9	178.7	173.1	168.8	165.6	162.4	159.4	156.3	153.2	150.2	147.1	144.0	140.8	Spread (bp) 3/	723		
Public gross financing needs	11.9	24.9	22.5	17.9	19.1	16.3	13.0	8.2	6.1	5.4	5.7	9.0	6.5	6.3	5.8	5.8	7.5	5.9	CDS (bp)	1029		
Real GDP growth (percent)	-2.2	0.7	-0.2	0.0	2.9	3.2	2.8	2.4	1.8	1.3	1.3	1.2	1.3	1.3	1.2	1.2	1.3	1.2	Ratings	Foreign	Local	
Inflation (GDP deflator, percent)	1.6	-2.2	-0.6	-0.2	0.7	1.3	1.5	1.7	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	Moody's	Caa3	Caa3	
Nominal GDP growth (percent)	-0.6	-1.6	-0.9	-0.2	3.7	4.5	4.3	4.1	3.6	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	S&P's	B-	B-	
Effective interest rate (percent) 4/	4.2	2.2	2.1	1.1	1.2	1.1	1.1	1.1	1.2	1.3	1.3	1.3	1.2	1.2	1.2	1.1	1.1	1.1	Fitch	CCC	CCC	

Contribution to Changes in Public Debt

	Actual			Projections																Cumulative	Debt-stabilizing primary balance 9/
	2005–2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030			
Change in gross public sector debt	9.2	1.5	-1.5	6.8	1.6	-0.4	-6.2	-5.6	-4.3	-3.2	-3.1	-3.0	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-36.1	-3.1	
Identified debt-creating flows	16.7	8.6	-0.2	7.9	-0.9	4.4	-7.6	-7.0	-5.7	-4.7	-4.7	-4.6	-4.7	-4.7	-4.6	-4.6	-4.6	-4.6	-50.6		
Primary deficit	3.3	0.0	-0.7	0.5	-0.3	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-19.2		
Primary (noninterest) revenue and grants	41.9	46.8	48.1	45.6	44.5	43.2	42.5	41.9	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	41.6	634.2		
Primary (noninterest) expenditure	45.3	46.8	47.3	46.1	44.3	41.7	41.0	40.4	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	614.9		
Automatic debt dynamics 5/	7.7	8.6	7.2	2.3	-4.5	-6.1	-5.7	-5.1	-4.0	-3.1	-3.0	-3.0	-3.1	-3.0	-3.0	-3.0	-3.0	-3.0	-50.4		
Interest rate/growth differential 6/	7.8	6.9	5.4	2.3	-4.4	-6.0	-5.7	-5.1	-4.0	-3.1	-3.0	-3.0	-3.1	-3.0	-3.0	-3.0	-3.0	-3.0	-50.3		
Of which: real interest rate	3.6	8.0	4.9	2.3	0.7	-0.4	-0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.1	-1.2	-1.2	-1.2	-1.2	-1.2	-10.3		
Of which: real GDP growth	4.1	-1.2	0.4	0.0	-5.2	-5.7	-5.0	-4.1	-3.0	-2.0	-2.0	-2.0	-1.9	-1.9	-1.9	-1.9	-1.8	-1.8	-40.0		
Exchange rate depreciation 7/	-0.1	1.7	1.8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Other identified debt-creating flows	5.7	0.0	-6.7	5.2	3.8	12.0	-0.4	-0.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	19.1		
Net privatization proceeds	-0.1	-0.3	-0.1	-0.3	-0.5	-0.7	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-2.4		
Contingent liabilities	1.0	0.3	-3.4	5.5	4.4	7.4	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	16.3		
Other liabilities (bank recap. and PSI sweetener)	4.8	0.0	-3.1	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3		
Residual, including asset changes 8/	-7.6	-7.1	-1.3	-1.2	2.4	-4.8	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.5	14.4		



Source: IMF staff projections.

1/ Public sector is defined as general government.

2/ Based on available data.

3/ Bond Spread over German Bonds.

4/ Defined as interest payments divided by debt stock at the end of previous year.

5/ Derived as  $[(r - p(1+g) - g + ae(1+r)] / (1+g+p+gp)$  times previous period debt ratio, with  $r$  = interest rate;  $p$  = growth rate of GDP deflator;  $g$  = real GDP growth rate;  $a$  = share of foreign-currency denominated debt; and  $e$  = nominal exchange rate depreciation (measured by increase in local currency value of U.S. dollar).

6/ The real interest rate contribution is derived from the denominator in footnote 4 as  $r - \pi(1+g)$  and the real growth contribution as  $-g$ .

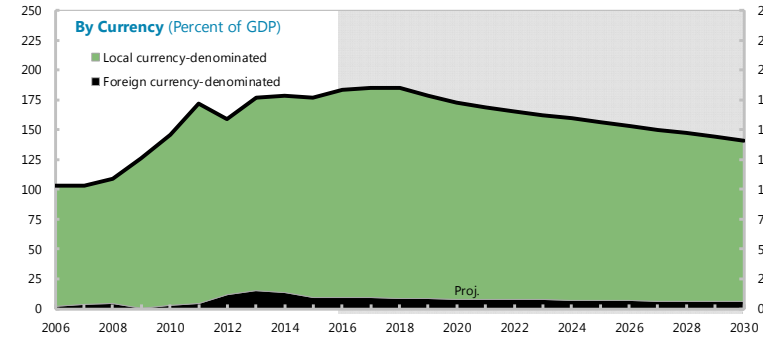
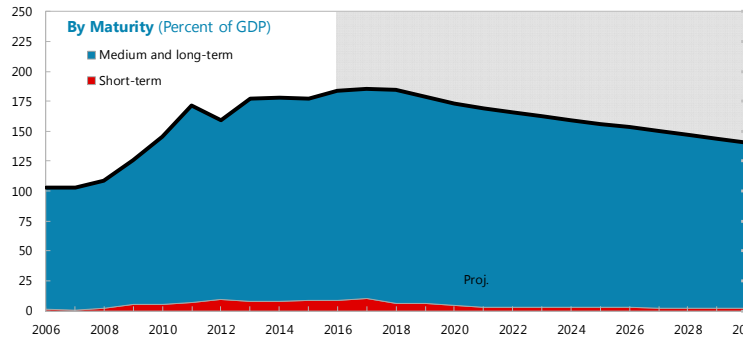
7/ The exchange rate contribution is derived from the numerator in footnote 2/ as  $ae(1+r)$ .

8/ For projections, this line includes exchange rate changes during the projection period. Also includes ESM capital contribution, arrears clearance, SMP and ANFA income, and the effect of deferred interest.

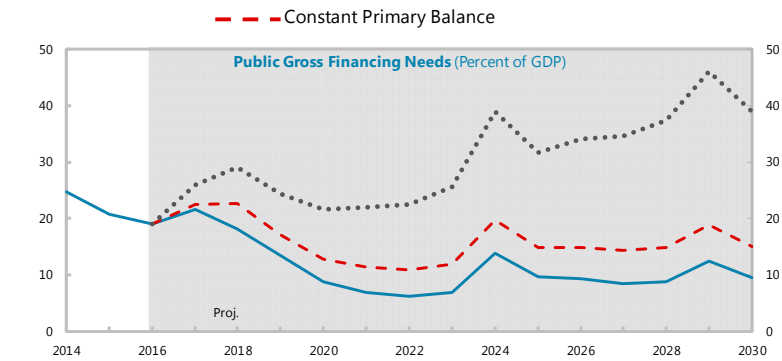
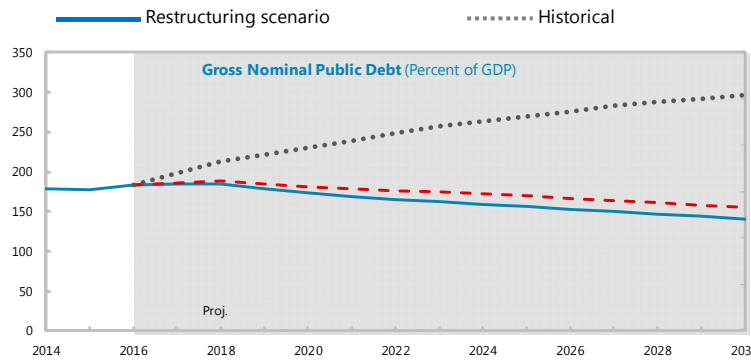
9/ Assumes that key variables (real GDP growth, real interest rate, and other identified debt-creating flows) remain at the level of the last projection year.

Greece Public DSA - Composition of Public Debt and Alternative Scenarios (Restructuring Scenario with Deferrals and Fixed Rates)

Composition of Public Debt



Alternative Scenarios



Underlying Assumptions

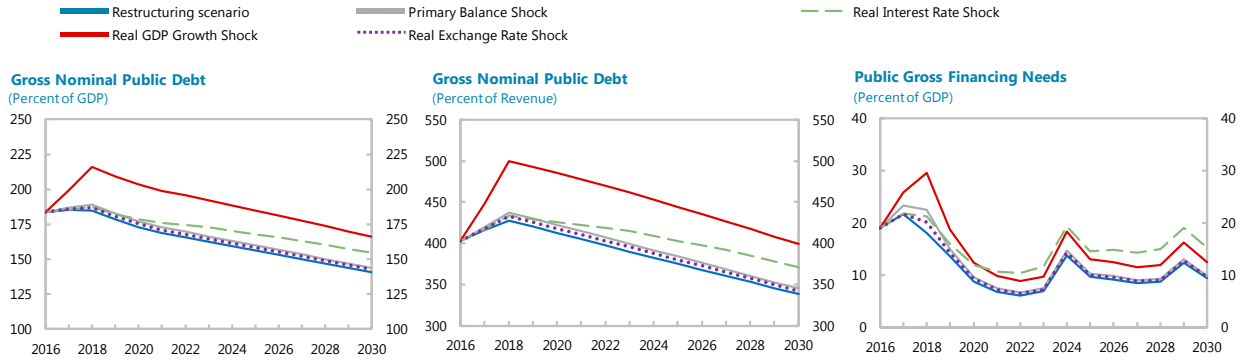
(Percent)

Restructuring scenario	2016	2017	2018	2019	2020	2021	2022	2025	2030	Historical scenario	2016	2017	2018	2019	2020	2021	2022	2025	2030
Real GDP growth	0.0	2.9	3.2	2.8	2.4	1.8	1.3	1.3	1.2	Real GDP growth	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Inflation	-0.2	0.7	1.3	1.5	1.7	1.8	1.9	1.9	1.9	Inflation	-0.2	0.7	1.3	1.5	1.7	1.8	1.9	1.9	1.9
Primary balance	-0.5	0.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	Primary balance	-0.5	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8
Effective interest rate	1.1	1.2	1.1	1.1	1.1	1.2	1.3	1.2	1.1	Effective interest rate	1.1	1.3	1.6	1.8	2.0	2.3	2.5	2.7	2.7
<b>Constant primary balance scenario</b>																			
Real GDP growth	0.0	2.9	3.2	2.8	2.4	1.8	1.3	1.3	1.2										
Inflation	-0.2	0.7	1.3	1.5	1.7	1.8	1.9	1.9	1.9										
Primary balance	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5										
Effective interest rate	1.1	1.3	1.2	1.2	1.3	1.4	1.5	1.5	1.4										

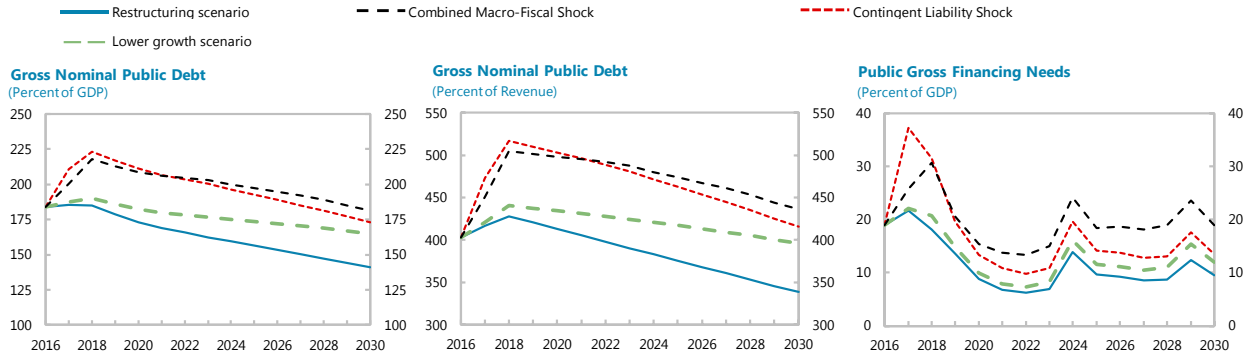
Source: IMF staff.

Greece Public DSA - Stress Tests (Restructuring Scenario with Deferrals and Fixed Rates)

Macro-Fiscal Stress Tests



Additional Stress Tests



Underlying Assumptions

(Percent)

	2016	2017	2018	2019	2020	2021	2022	2025	2030		2016	2017	2018	2019	2020	2021	2022	2025	2030
<b>Primary Balance Shock</b>										<b>Real GDP Growth Shock</b>									
Real GDP growth	0.0	2.9	3.2	2.8	2.4	1.8	1.3	1.3	1.2	Real GDP growth	0.0	-1.8	-1.5	2.8	2.4	1.8	1.3	1.3	1.2
Inflation	-0.2	0.7	1.3	1.5	1.7	1.8	1.9	1.9	1.9	Inflation	-0.2	-0.4	0.1	1.5	1.7	1.8	1.9	1.9	1.9
Primary balance	-0.5	-1.4	-0.2	1.5	1.5	1.5	1.5	1.5	1.5	Primary balance	-0.5	-2.4	-3.6	1.5	1.5	1.5	1.5	1.5	1.5
Effective interest rate	1.1	1.2	1.1	1.2	1.2	1.3	1.4	1.3	1.1	Effective interest rate	1.1	1.3	1.3	1.4	1.4	1.5	1.6	1.5	1.3
<b>Real Interest Rate Shock</b>										<b>Real Exchange Rate Shock</b>									
Real GDP growth	0.0	2.9	3.2	2.8	2.4	1.8	1.3	1.3	1.2	Real GDP growth	0.0	2.9	3.2	2.8	2.4	1.8	1.3	1.3	1.2
Inflation	-0.2	0.7	1.3	1.5	1.7	1.8	1.9	1.9	1.9	Inflation	-0.2	1.1	1.3	1.5	1.7	1.8	1.9	1.9	1.9
Primary balance	-0.5	0.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	Primary balance	-0.5	0.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Effective interest rate	1.1	1.3	1.8	2.0	2.3	2.5	2.7	2.8	2.9	Effective interest rate	1.1	1.3	1.2	1.2	1.2	1.3	1.4	1.3	1.1
<b>Combined Shock</b>										<b>Contingent Liability Shock</b>									
Real GDP growth	0.0	-1.8	-1.5	2.8	2.4	1.8	1.3	1.3	1.2	Real GDP growth	0.0	-1.8	-1.5	2.8	2.4	1.8	1.3	1.3	1.2
Inflation	-0.2	-0.4	0.1	1.5	1.7	1.8	1.9	1.9	1.9	Inflation	-0.2	-0.4	0.1	1.5	1.7	1.8	1.9	1.9	1.9
Primary balance	-0.5	-2.4	-3.6	1.5	1.5	1.5	1.5	1.5	1.5	Primary balance	-0.5	-13.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Effective interest rate	1.1	1.3	1.8	2.2	2.4	2.6	2.8	3.0	3.1	Effective interest rate	1.1	1.3	1.9	1.6	1.6	1.7	1.8	1.7	1.5
<b>Lower Growth Scenario</b>																			
Real GDP growth	0.0	1.9	2.2	1.8	1.4	0.8	0.3	0.3	0.2										
Inflation	-0.2	0.7	1.3	1.5	1.7	1.8	1.9	1.9	1.9										
Primary balance	-0.5	0.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5										
Effective interest rate	1.1	1.3	1.2	1.3	1.3	1.4	1.4	1.4	1.2										

Source: IMF staff.