



# GREECE

## SELECTED ISSUES

June 2013

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# GREECE

## SELECTED ISSUES

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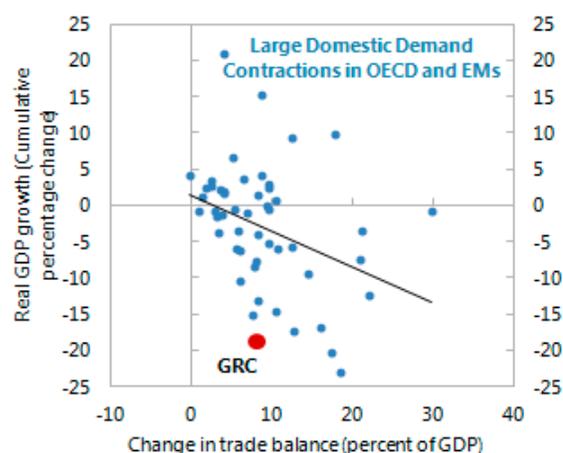
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## RESTORING GROWTH<sup>1</sup>

*Rigidities in Greece's product and labor markets have increased the cost of adjustment to large pre-crisis economic imbalances. Simulations from a calibrated model of the Greek economy confirm that reforms to these markets can play a significant role in stemming output losses and supporting the recovery. In particular, with important labor market reforms having been implemented recently, steadfast implementation of product market reforms is key to reinvigorating growth.*

### A. What Explains Greece's Adjustment Pattern?

**1. Greece has made headway in restoring competitiveness via internal devaluation, but adjustment costs have been high.** The improvement in the trade balance by 9 percentage points since 2009 was achieved by contracting output by 22 percent—a much worse trade-off than in other economies. Despite initially encouraging performance, export growth has done little to cushion the impact of domestic demand collapse on the economy. By contrast, other crisis countries (Spain, Portugal, Ireland) have had relatively more success in stimulating exports and avoiding a deep output collapse. The difference can be explained in part by Greece's larger initial imbalances (e.g., the CGER-estimated REER misalignment was higher for Greece than for Spain and Portugal), and hence by the need for a greater reallocation of resources. Such reallocation is inevitably costly in the short-run. Even so, the loss of output has been proportionately higher in Greece.



Source: IMF, *World Economic Outlook*; and IMF staff estimate.

**2. To account for the high adjustment costs, we conduct an empirical analysis of growth during large adjustment episodes.** Our econometric analysis follows a large literature on growth performance in current account adjustment episodes (e.g., Milesi-Ferretti and Razin, 1998), with two important distinctions. First, we choose a sample based on large domestic demand contractions rather than large current account adjustments. This focuses the analysis on adjustments to negative shocks and eliminates externally-driven current account improvements. Second, we add structural indicators to test for the potential effect of labor and product market rigidities on growth during the adjustment episodes. Adjustment episodes are defined by two criteria: (i) negative domestic demand growth; and (ii) a contraction in the average domestic-absorption-to-GDP ratio by more than 3 percentage points between two consecutive three-year periods. To avoid excess

<sup>1</sup> Prepared by Wojciech Maliszewski.

heterogeneity, the sample is restricted to OECD and emerging market economies. In this exercise, the variables used to explain cumulative growth are as follows:

- **Institutional indicators.** Product and labor market rigidities raise adjustment costs by hindering the reallocation of resources. In our empirical analysis, we include labor and product market regulations at the start of an adjustment episode as proxied, respectively, by the “Labor market regulations” index and the “Freedom to trade internationally” index, both from Economic Freedom of the World Annual Report (Gwartney et al., 2012). Note that, while better indicators of product market regulations are available (e.g., OECD indices of product market regulations), their coverage of countries and of time samples is narrower. We use country rankings in both cases—a higher value indicates more regulated product and labor markets.
- **Exchange rate regime.** Fixed regimes limit or eliminate the nominal exchange rate adjustment channel, potentially increasing costs. We use a dummy for fixed exchange rate regimes based on the IMF’s Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER, 2012). Pegged regimes are defined as belonging to three AREAER categories: no separate legal tender, currency board, and conventional pegs. Members of currency unions are also classified as operating under fixed exchange rate.
- **Exchange rate misalignment.** The extent of initial imbalances dictates the size and possibly the speed of the subsequent adjustment. We use the IMF’s CGER measure of exchange rate misalignment, and specifically the equilibrium real exchange rate method (Lee et al, 2008).
- **Financial conditions** are potentially an important determinant of adjustment costs, determining both the degree of consumption smoothing and support for investments. Given the potential endogeneity of indicators of financial conditions, and given the focus of the analysis on large domestic demand contractions, we use a dummy indicating banking crisis episodes during or up to two years before the beginning of the adjustment episode (Laeven and Valencia, 2012) as a proxy for the tightening of financing conditions.
- **External shocks.** External conditions are approximated by growth in partner countries (weighted by trade shares). This series, as well as cumulative GDP growth and national accounts data used to select the episodes, are from the IMF’s WEO database.

### Explaining Cumulative Growth During Episodes of Large Domestic Demand Contractions 1/

Indicator	(1)	(2)	(3)
	OLS	Robust Regression 2/	OLS
Freedom to trade internationally (rank)	-0.086* (0.045)	-0.093* (0.050)	-0.068 (0.064)
Labor market regulations (rank)	-0.085* (0.049)	-0.099* (0.053)	-0.083 (0.077)
Exchange rate peg (dummy)	-2.817 (1.700)	-3.252* (1.852)	... ...
Exchange rate overvaluation (percent)	-0.130*** (0.044)	-0.132*** (0.048)	-0.087 (0.063)
External demand (percent change)	0.373** (0.178)	0.339* (0.194)	0.643** (0.264)
Banking sector crisis (percent)	-6.581*** (1.774)	-6.847*** (1.933)	-3.809 (3.137)
Constant	3.090 (2.840)	4.343 (3.094)	-0.935 (3.729)
Observations	42	42	27
R-squared	0.580	0.558	0.460

Source: IMF staff estimates.

1/ Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

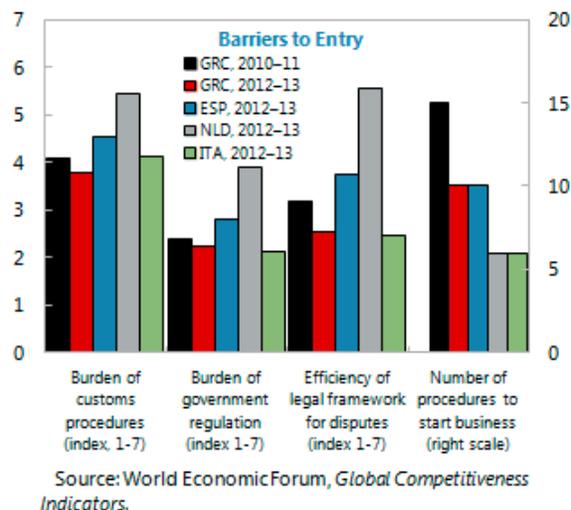
2/ Robust regression reestimates the baseline specification using robust regression, which downweights observations with larger absolute residuals using iterative weighted least squares (Andersen, 2008).

**3. The econometric results show that adjustment costs are shaped both by initial conditions and macroeconomic shocks and by the degree of product and labor market flexibility (Table).** Although based on a small sample of adjustment episodes, the results indicate that the degree of overvaluation, external demand growth, and the tightening of financial conditions in the aftermath of banking crises are strongly and significantly linked to adjustment costs. Product and labor market regulations also have a negative and significant impact on growth, and the estimates are fairly robust (as indicated by alternative estimation methods). Pegged regimes also seem to be negatively correlated with growth during the adjustment episode, as indicated by the high and negative coefficient of the peg dummy. To further test whether adjustments under fixed exchange rate regimes—potentially more relevant to draw lessons for Greece—differ from full sample results, the model is re-estimated based on a sample restricted to those episodes under fixed exchange rate regimes. The estimates are less precise—suggesting a wide range of outcomes under fixed exchange rate regimes in the sample—but values and signs of key coefficients remain close to the full sample estimation.

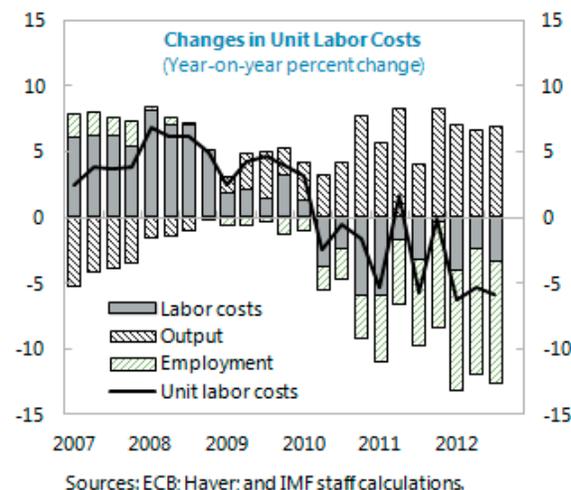
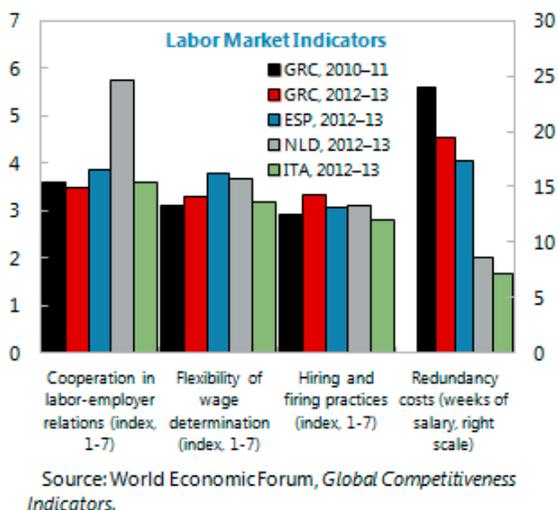
**4. Greece's low score in both product and labor market flexibility indicators suggests that structural rigidities have played an important role in making the adjustment more costly.** While labor market reforms have advanced since the beginning of the crisis, there has been relatively little progress in addressing structural rigidities in product markets. Several factors played a role in restraining product and labor market flexibility:

- **Greece entered the crisis with an overburden of regulation.** The key sources include:

(i) important assets have been owned—or their use restricted—by the state, and they remain underutilized (e.g., because of land zoning restrictions) or subject to monopolies (network utilities); (ii) regulations have been excessive, with permitting, licensing and export-import requirements well inferior to EU best practice; and (iii) even beyond explicit requirements, outsiders have been discouraged from entry into new markets by implicit barriers, including excessive bureaucracy, corruption, and opaque tax and labor regulations. These barriers limited competition (including from FDI), keeping prices and margins well above the EU average level, and preserving an economic model based on small and inefficient enterprises.



- **Similarly, Greece’s labor market regulations were rigid and tended to protect insiders.** The labor market has traditionally suffered from a closed and inflexible system of collective bargaining, very high firing costs (severance payments and redundancy notification periods), a high national minimum wage relative to competitors, and high non-wage labor costs. The reforms under the program have significantly reduced the rigidities, which facilitated wage adjustments and contributed to the reduction in unit labor costs (ULCs).



**5. Would the elimination of existing distortions limit output losses during the recession and contribute to the recovery?** While econometric estimates give a broad-brush picture of the correlation between structural rigidities and growth performance during the adjustment, they are not sufficient to analyze the effects of removing the distortions: the data sample is limited and proxies for potential explanatory factors are imperfect. Given the limited data, the model does not directly capture the response of growth to reforms *reducing* structural rigidities (correlating it instead only with a level). Neither does it consider the sequencing of policies (e.g., labor and product market reforms) that could potentially affect adjustment costs in different ways. To explore these questions, we use a calibrated model of the Greek economy in the next section.

## B. Can Structural Reforms Reinvigorate and Sustain Growth?

**6. What economic effects can realistically be expected from the implementation of structural reforms?** While the initial program for Greece relied heavily on productivity gains (driven by structural reforms) to deliver a quick rebound in growth, the strategy has been subsequently revised to allow for deeper wage and price adjustment, more fully taking into account the authorities' implementation capacity and the transmission channels of reforms. This section addresses two questions: what can structural reforms deliver in terms of growth and improvement in competitiveness, and how fast? We review how structural reforms affect economic performance in theory and previous empirical studies, before turning to Greece-specific simulations.

### Theoretical channels and results from previous empirical studies

**7. Theoretical results point to benefits from structural reforms, but indicate that they may not materialize immediately:**

- **The main theoretical channel through which structural reforms affect economic performance is through a reduction in rents** (Blanchard and Giavazzi, 2001). Removing barriers to entry—which are defined broadly, including excess bureaucracy and other deficiencies in business environment—enhances competition and reduces rents. This brings prices more in line with marginal costs, encouraging managers and workers to operate more efficiently.
- **The process of improving efficiency of the economy is not frictionless.** It involves improving allocative efficiency (moving resources to more productive uses) and productive efficiency (organizing work more effectively, trimming fat and reducing slack). In the process, low-productivity firms exit, releasing resources to be absorbed by more productive firms (who are also better able to compete abroad). Transition costs can be high, particularly when market imperfections in the credit market constrain investments of productive firms, or uncertainty about economic prospects weigh on investments directly.

- **Different forces play a role in increasing long-term productivity growth.** The process of improving allocative and productive efficiency ultimately comes to a stop when the economy reaches the production frontier, and innovation and the introduction of new goods and processes drive growth thereafter.

## 8. Empirical results are in line with the theory, indicating that the effects of structural reforms build up gradually:

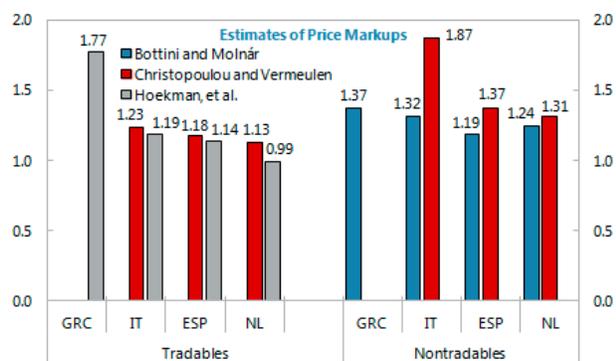
- **In the long run, product and labor market reforms can have positive effects** on growth, employment, and productivity (e.g., Bouis and Duval, 2011; Barnes et al, 2011; OECD, 2012; Hobza and Mourre, 2010);
- **In the short run, the impact is smaller because of adjustment costs**, especially in the case of labor market reforms (Cacciatore et al, 2012), and particularly when these are undertaken during recessions (Bouis et al, 2012);
- **There are complementarities between product and labor market reforms:** a broad reform package would be more beneficial than individual reforms as the former could help lower transitional costs (Cacciatore et al, 2012). They would also improve the distributional consequences that might otherwise arise if wage declines are not matched with proportional price declines.

**9. Greece-specific empirical results point to potentially sizeable positive effects of structural reforms on GDP and productivity.** In particular, using a calibrated model, Zonzilos (2010) finds that product and labor market reforms could boost GDP level by about 10 percent in the steady state, and also help restore price competitiveness. This is in line with previous empirical studies.

## Model setup and simulation

**10. The impact of product and labor market reforms in Greece is simulated using the IMF's Global Integrated Monetary and Fiscal model (GIMF).** This DSGE model (see Box 1) can help

illuminate transmission channels and analyze the sequencing of reforms. Given the presence of monopolistic competition in both firms and labor markets, the GIMF is well suited to analyze the effects of structural reforms reducing price and wage markups (because, as discussed above, structural reforms are usually framed in terms of making the markets more competitive, for example, through reducing entry barriers). Our simulation framework is similar to Lusinyan and Muir (2012).



Sources: Bottini and Molnár (2010); Christopoulou and Vermeulen (2012); and Hoekman, et al. (2001).

**11. The standard calibration of GIMF is augmented with Greek-specific information.** To reflect the negative impact of the crisis on the financial system, it is assumed that liquidity constrained households make up 50 percent of all households (compared to 25 percent for the euro area). The markups are calibrated to be consistent with empirical studies and previous results in the literature: the non-tradable sector price markup is 60 percent versus 35 percent for the rest of the euro area; and 20 percent—against 15 percent in the euro area—for the tradable sector. For the wage markup, we follow the assumption in Forni et al. (2010) and use the same values as for the non-tradable sector price markup. Steady state ratios are calibrated to 2011 values, with some modifications. In particular, the persistently high current account deficit is assumed to be eliminated in the steady state through higher exports and the debt-to-GDP ratio is assumed to decline to the euro area level in the steady state.

### Box 1. GIMF Model

GIMF is a multi-country Dynamic Stochastic General Equilibrium (DSGE) model with optimizing behavior by households and firms, and intertemporal stock-flow accounting (Kumhof et al., 2010):

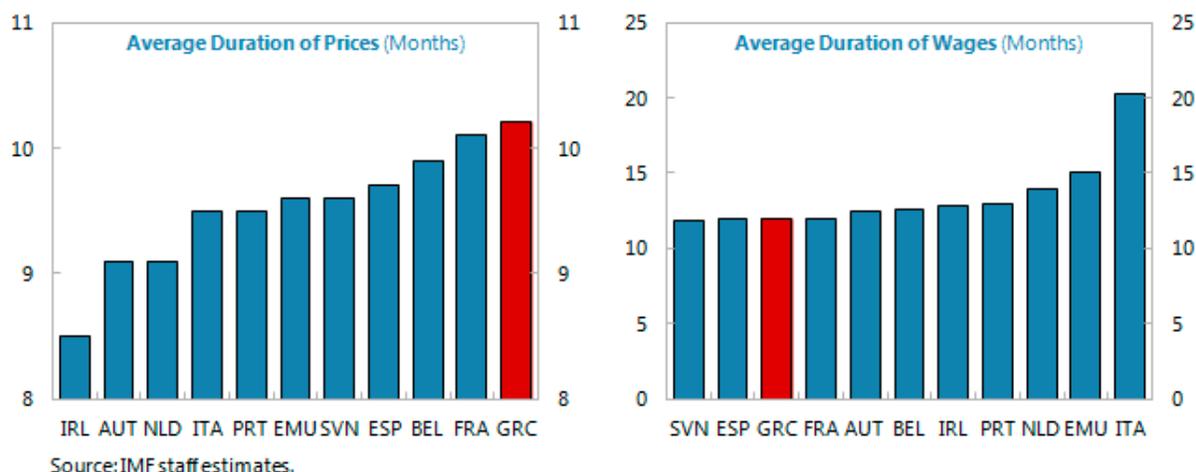
- Frictions in the form of sticky prices and wages, real adjustment costs, liquidity-constrained households, and finite-planning horizons of households imply an important role for monetary and fiscal policy in economic stabilization (the assumption of finite horizons separates GIMF from standard monetary DSGE models and allows it to have well-defined steady states where countries can be long-run debtors or creditors).
- The non-Ricardian features of the model provide non-neutrality in both spending-based and revenue-based fiscal measures, which makes the model particularly suitable to analyze fiscal policy questions (fiscal policy can affect the level of economic activity in the short run).
- Government debt is only held domestically, as nominal, non-contingent, one-period bonds denominated in domestic currency. The only assets traded internationally are nominal, non-contingent, one-period bonds denominated in U.S. dollars that can be issued by the U.S. government and by private agents in any region.
- Firms employ capital and labor to produce tradable and nontradable intermediate goods. They are owned domestically (equity is not traded in domestic financial markets; instead, households receive lump-sum dividend payments).
- A financial sector à la Bernanke, Gertler, and Gilchrist (1999) incorporates a procyclical financial accelerator, with the cost of external finance of firms rising with their indebtedness.
- The version of GIMF used in this paper comprises 3 regions: Greece, the euro area, and the rest of the world.

**12. Several simulations are analyzed.** In a baseline simulation, there are no structural reforms. In a second simulation, only labor market reforms only are analyzed. A third simulation adds to the second simulation by analyzing product market reforms as well, albeit with hesitant and delayed implementation of these reforms. A final simulation looks at the effect of credible, upfront implementation of both labor and product market reforms.

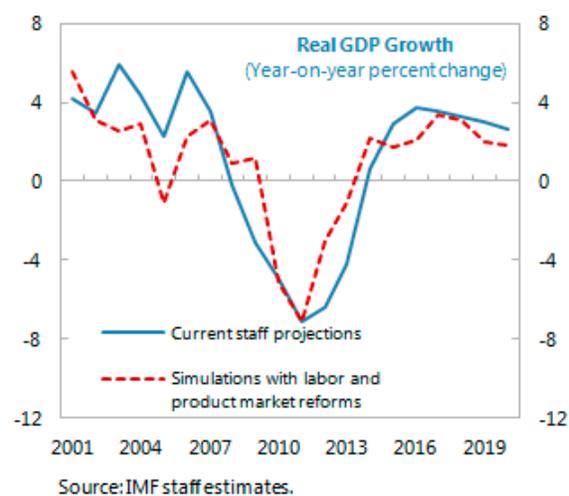
**13. In line with theoretical results and previous studies, the reforms are modeled as a reduction in rents.** We assume that increased competition in the product and labor markets brings margins down. The key assumption here is the extent to which specific reforms could translate into markups. While a one-to-one mapping of specific reforms to reduction in rents is difficult to achieve, cross-country econometric results point to significant effects of reforms on markups. For instance, Griffiths and Harrison (2004) find that reductions in costs of doing business, regulatory trade barriers, labor market regulations, and government bureaucracy significantly reduce price markups in a sample of OECD countries. E.g., the 1995-2000 reforms in Germany to reduce costs of starting a business are estimated to have reduced the markup by 2 percentage points. The effects of wage markups are more difficult to establish empirically, but Stewart (1990) for instance presents evidence that markups are higher in unionized establishments facing less competition. Theoretical results also suggest that reforms to reduce the difficulty of hiring and firing, a lower wage replacement ratio, and increasing competition in product markets contribute to lower wage markups.

**14. We assume that the reforms close roughly half the gap between the Greece and the rest of the euro area over a five-year period.** The reforms to labor markets already underway and to product markets currently in the pipeline are similar to the set of reforms affecting the markups identified in the empirical literature. The advances made to date in labor market reforms give support to this assumption on timing and their implementation path is assumed to be known with certainty by economic agents. But, given slow progress on product market reforms, the simulations distinguish between product market reforms that are not entirely credible (which limits the upfront benefits from the reforms) from those that are implemented fully and upfront. In the former, economic agents regard already implemented changes as permanent, but view further reforms with uncertainty in the near term.

**15. We also assume that structural reforms reduce wage and price rigidities.** While increasing competition ultimately lowers prices and wages, the speed of change is affected by nominal rigidities. These are a function of the degree of competition itself, but also of institutional regulations, such as minimum wages or price regulations. Before the crisis, price rigidities in Greece appeared much higher than in the rest of the euro area, while wage rigidities were in line with other countries. However, with typically more constraints to deflation and cuts in nominal wages compared to just slowdowns in price and wage dynamics, the inability of real wages to adjust downward is more constraining in severe recessions. We assume that wage and price rigidities are reduced by about 30 percent as part of the reform process..



**16. Importantly, to mimic the recession dynamics observed in Greece, we add shocks to the model.** The fiscal adjustment—modeled to match the dynamics of the cyclically-adjusted primary balance in the adjustment—primes the downturn. However, it does not generate sufficient persistence to model Greece’s recession. This suggests that key explanators for Greece’s growth performance during the crisis go well beyond fiscal multipliers to include the range of severe confidence shocks hitting the economy in 2011–12, affecting investments and consumption both directly and through a liquidity squeeze. To align model-simulated growth path with actual data, we thus add shocks to investment, consumption, and financing.



## C. Simulation Results

**17. Labor market reforms bring modest benefits in terms of output, but significantly reduce current account deficits (Figure 1).** Without greater competition in the product market, the increased flexibility in the labor market has only marginal effects on prices, which drop by about  $\frac{3}{4}$  of a percentage point after 5 years and by 2 percent by 2030. Output increases are also modest (about half a percent after 5 years and 3 percent by 2030). Employment increases though, as lower wage markups induce a switch from capital to labor in inputs to production. There is a strong reduction in current account deficits, driven by both reductions in imports and a modest increase in exports (as initial real wage declines limit consumption and investment, while supporting demand for labor and domestic supply).

**18. Product market reforms reduce prices and boost output.** Lower barriers to entry encourage competition, reducing prices by 1¾ percent in the medium term and by over 6 percent by 2030. The reduction in prices and stronger demand for labor increase real incomes, boosting consumption. Investments increase in anticipation of the future stronger demand from the external sector and consumption. Output growth is strong, averaging about half a percentage point more than in the baseline without reforms, with the cumulative effects of over 3 and 6½ percentage points after five years and by 2030, respectively. Higher investments and consumption would initially lead to a deterioration of the current account, reversed when the new production capacity comes on stream. The latter would increase exports: initial gains would be modest—given capacity constraints—but would rise in the medium to long term, helped by strong competitiveness gains.

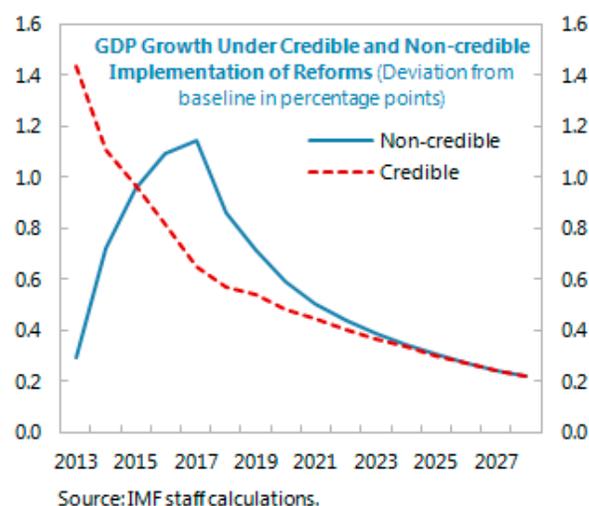
**19. The results of the two reforms are additive, producing significantly higher output and lower prices, while improving external current account with a lag.** Output growth is as much as ½ percentage point per year higher than in the baseline without reforms, with the cumulative impact of over 10 percent by 2030. Prices drop by over 6 percent cumulatively during this period. As noted, the current account deteriorates initially, reflecting largely the effects of product market reforms on investment and consumption, only to improve when the new export capacity—encouraged by improved competitiveness—comes on stream.

**20. The simulated effects of reforms are in line with developments in the Greek economy.** While identifying the effects of reforms is made difficult by the number of adverse shocks affecting the economy and the dynamics of the recession occurring simultaneously, economic developments following the implementation of labor market reforms are in line with model predictions: it led to large reductions in wages combined with the improvement in the current account through import compression, without markedly stemming output declines. Given uneven and delayed implementation of product market reforms, it is not unexpected that output gains are not visible.

**21. The results are also consistent with long-term projected growth under the program.** While the effect of reforms on growth ultimately taper off, they are still significant well beyond 2020. The cumulative effect of combined reforms on output reaches about 10 percent after 2030. The gradual accumulation of gains from reforms supports the projected TFP growth under the program, which is consistent with previous empirical results indicating relatively long payoff periods from structural reforms (Barnes et al., 2011). The assumed medium-term productivity growth in Greece is also consistent with results reported in other countries undertaking structural reforms (e.g., ¾ percent per year in Germany and 1½ percent in Netherlands). The still high productivity gap to the core of Europe indicates that the potential for catch-up growth is high, and gains from reforms could even exceed estimates from the model.

**22. Growth could be frontloaded with more credible reform implementation.**

Alternative simulations in which economic agents fully anticipate future reforms boost growth through expectations of future recovery. The effect is strong: growth in the first year of reform implementation (assuming that both labor and product market reforms are implemented simultaneously) would be 1 percentage point higher compared to the non-credible implementation of reforms in our baseline simulations (long-term effects would be close in both scenarios).



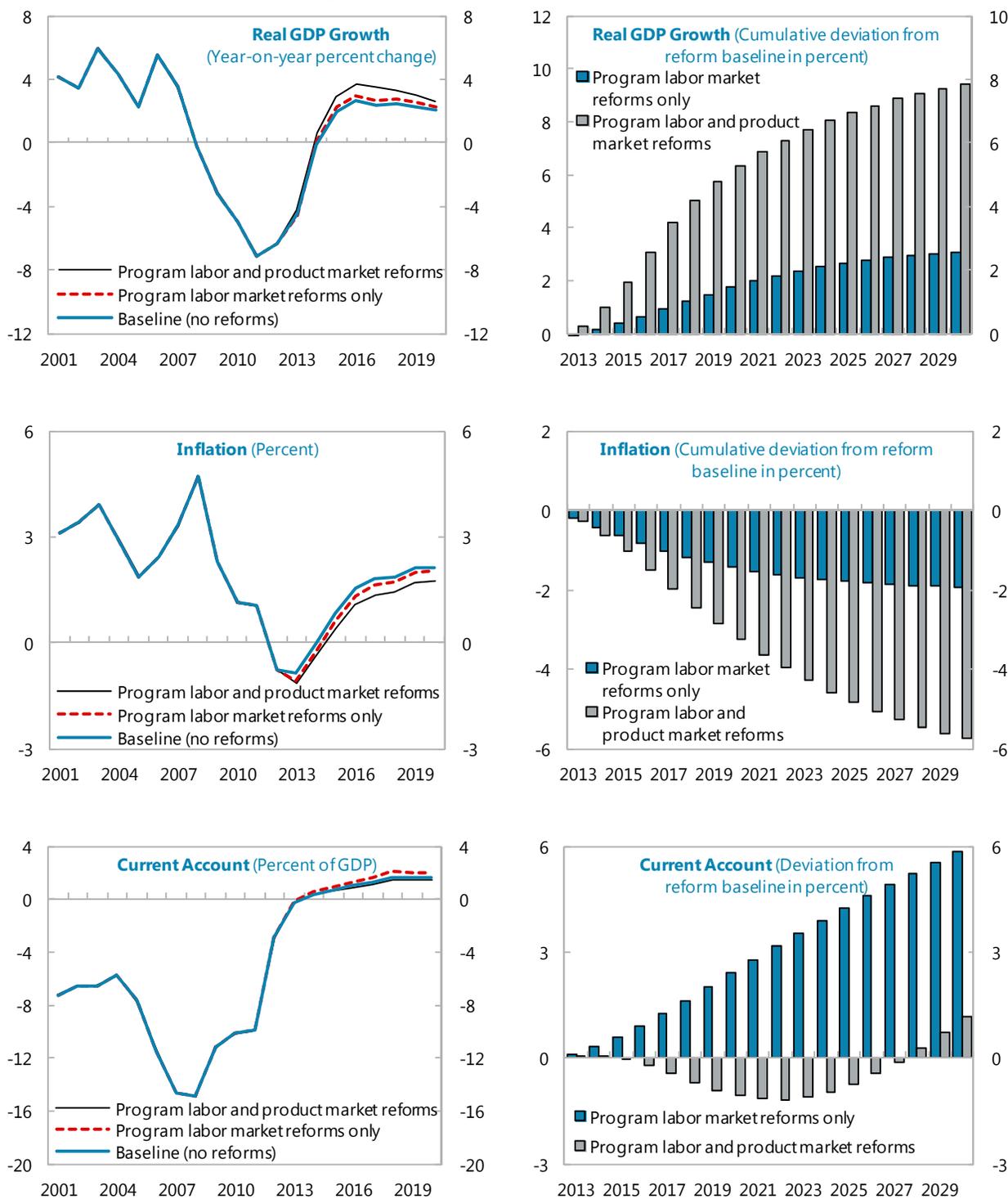
## D. Conclusions

**23. Greece's high adjustment costs can be explained in part by structural rigidities.** While a number of factors have played a role in accounting for Greece's growth performance in the past few years, pervasive structural rigidities have raised the cost of adjustment. Their effect has been direct and indirect: they likely contributed to the significant imbalances before the crisis, which made the adjustment painful given the scale of imbalances that needed to be corrected. They also likely created disincentives for an efficient reallocation of resources (by preserving rents) and increasing price and wage rigidities (delaying the necessary nominal adjustment).

**24. The impact of structural reforms on GDP can be sizeable.** We confirm earlier findings from the literature using the IMF's Global Integrated Monetary and Fiscal model (GIMF) showing that policies that would close roughly half the gap in product and labor markets with the rest of the euro area could raise real GDP by about 4 percent after 5 years and by 10 percent in the long run. This is a significant boost to the economy, especially beyond the projected cyclical upturn when the labor force begins to shrink. It is also in line with previous econometric studies. It is smaller, however, than gains expected at the initiation of the program in 2010, reflecting more realistic assumptions about both the pace of implementation and the transmission channels. With reforms currently in place, staff's latest projections are in line with model-based simulations.

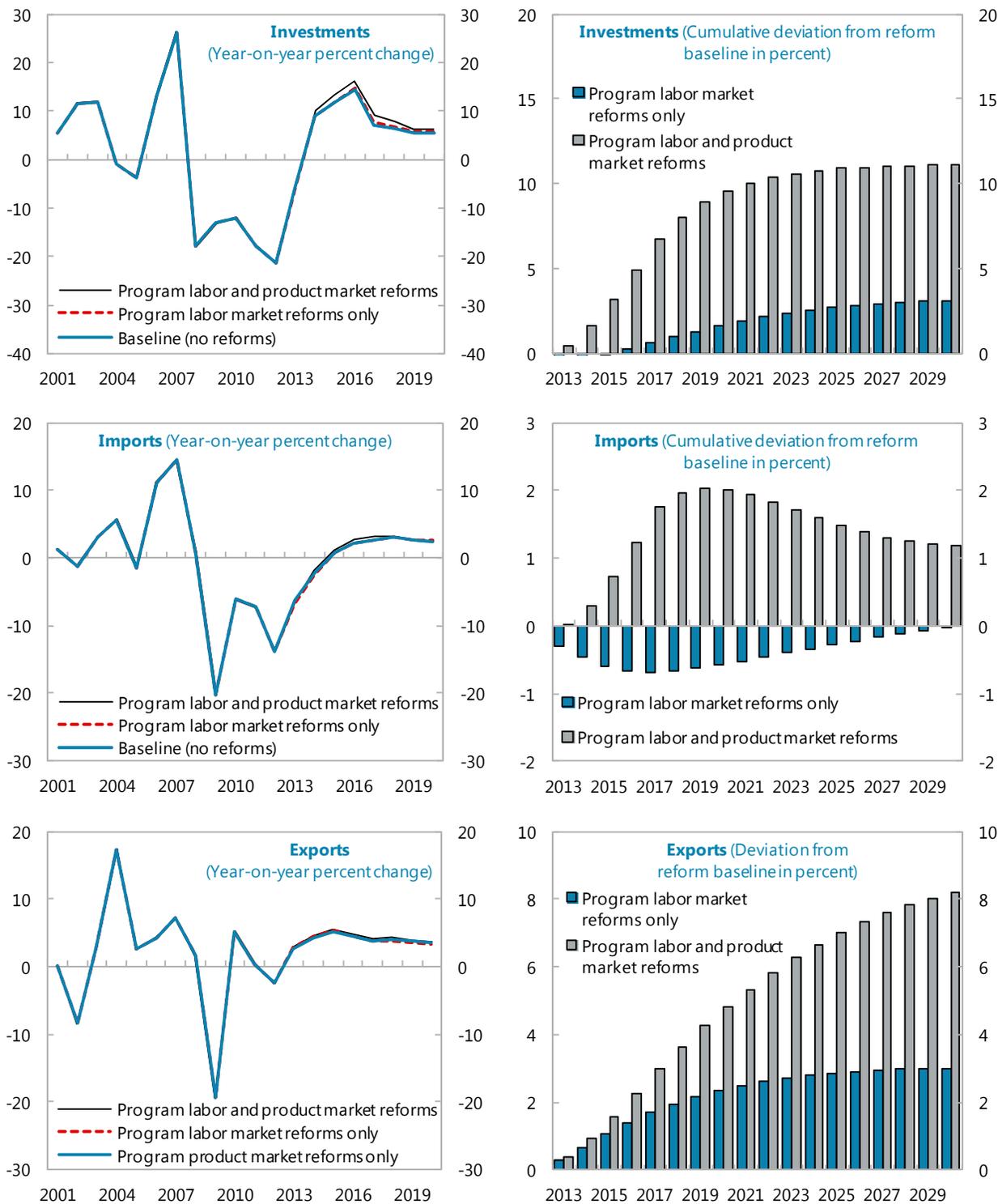
**25. A decisive implementation of product market reforms would have a measurable impact on output dynamics, inflation, and competitiveness.** The early implementation of reforms in the labor market led to sharp reductions in wages, stemmed employment losses, and reduced current account. But a broader set of product market reforms is needed to meaningfully reinvigorate growth. Such reforms would have a meaningful impact on the speed of recovery (as credible product market reforms encourage investments in anticipation of future gains and exports boosted by the new capacity and improvements in competitiveness) and also on growth beyond the cyclical rebound, as gains from structural reforms are projected to materialize gradually.

**Figure 1. Simulation Results, 2013–20**



Source: IMF staff estimates.

**Figure 1. Simulation Results, 2013–20 (concluded)**



Source: IMF staff estimates.

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# REVENUE ADMINISTRATION AND FISCAL CONSOLIDATION<sup>1</sup>

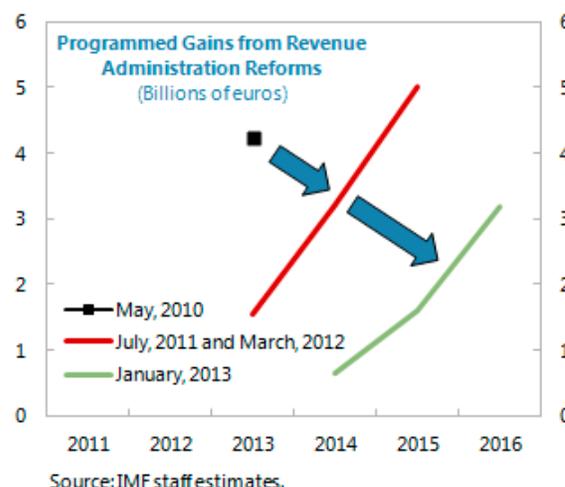
*Greece has undertaken a very strong fiscal effort. During 2009–12, the primary balance improved by over 9 percent of GDP, or 15 percent in cyclically-adjusted terms. Further improvement of some 4¼ percent of GDP is needed over 2013–16 in the cyclically-adjusted primary balance to meet medium-term targets, making this one of the largest fiscal adjustment programs to date. This effort has been achieved primarily by raising tax rates to high levels and reducing wages, pensions, and other spending. Broadening the tax base and improving tax collection are also essential pillars on which some progress has been made and on which more is needed to ensure durability, fairness, and high quality of the adjustment. This paper describes the problems, progress to date, and agenda for work in Greece's revenue administration.*

## A. Why Improving Revenue Administration is Critical for Greece

1. **Further fiscal effort is needed to achieve debt sustainability, and tax collection gains are expected to play a key role.** Going forward, to achieve the headline primary surplus target of 4½ percent of GDP by 2016, additional savings of 3¼ percent of GDP will need to be identified. Almost half of this amount is slated to come from better tax collection. Given already compressed expenditure levels and high tax rates in Greece, the scope for further measures in these areas is somewhat more limited.
2. **Better tax collection is crucial to ensure broad-based public support for the adjustment effort.** The distribution of the revenue burden across society, and perception that everyone is paying their fair share, plays a key role in gaining support for the fiscal adjustment mix. This is an issue at both the level of the individual and at the level of businesses. To date in Greece, the main adjustment burden has been carried by easy-to-tax salaried employees and pensioners, while the richer, such as the self-employed (e.g., doctors, lawyers), and other high wealth individuals have continued to stay outside the tax net.
3. **Stronger revenue administration would have macroeconomic benefits.** Weaknesses in the revenue administration have encouraged small scale and inefficient economic units, which can evade taxes more easily (often only the owner or the family is involved in running the business). But such small scale operations tend to have a very low return and productivity. Poor collection also implies a need to maintain high tax rates in the formal economy, which hurts the competitiveness of larger, export-oriented companies.

<sup>1</sup> Prepared by Stephanie Eble (EUR) and Iva Petrova (FAD).

**4. The need for reform is urgent.** The program assumed from its onset that about 2 percent of GDP in savings would come from revenue administration reforms. However, yields from those reforms have been persistently shifted outward in time and reduced in amount because of slow progress. Slow progress reflected a lack of political commitment to take an unequivocal anti-evasion stance, the absence of leadership in a very decentralized institution, resistance to reform within the administration, weak implementation of reform laws, excessive legal formalism, and nontransparent laws and practices. Given the lead time in implementing those reforms, without imminent action, the latest trajectory for revenue gains could yet again be at risk.



**5. The paper is organized as follows:** The next section discusses the scope for raising revenue and where in the collection process is revenue being lost. The third section analyzes the rationale for evading taxes in Greece. The fourth section discusses the reforms underway to enhance revenue collection. The fifth section analyses what factors have been important to bring those changes about, drawing on country experiences. The final section concludes.

## B. Revenue Losses in Greece and the Scope for Higher Collection

**6. Several empirical studies on the tax gap point to large scale tax avoidance and evasion in Greece.**

- Schneider and Buehn (2012) in a cross-country study estimate the size of the shadow economy during 1999–2010 at around 27 percent of GDP, compared to an OECD average of 20.2 percent. Key explanatory variables in the case of Greece are the degree of self-employment, the indirect tax burden, the high unemployment rate, and tax morale. Self-employment appears the most significantly correlated variable with the size of the shadow economy in Greece, while tax morale—an important explanatory variable in other advanced countries—does not score as high as one might desire.
- Based on banks' perception of true income, Artavanis et al. (2012) estimate that annual unreported income exceeds €28 billion. They find that occupations most prone to tax evasion in Greece are lawyers, doctors, accountants, private tutors, and engineers.
- Further, Papageorgiou et al. (2011) find that, despite high statutory rates, effective tax rates in Greece are much lower than in the euro area, suggesting a high level of tax evasion and avoidance.

**7. There are many (often discretionary) exemptions in the tax code that erode the tax base.** While there has been a significant effort at streamlining non-productive and distortive tax exemptions, important ones in the areas of personal income, VAT and capital taxation remain, amounting to 2½ percent of GDP in 2011. In particular, for VAT, a super-reduced rate of 6.5 percent applies to hotels, medicine and books/news papers. For all Aegean islands, the VAT rates are reduced by 30 percent, i.e., a VAT of 16/9/5 percent compared to 23/13/6.5 percent on the mainland. With respect to PIT, remaining exemptions relate to having the status of a pensioner and disability, which have been subject to widespread misuse (the ongoing review of the disability status is only expected to be completed by 2016). CIT exemptions are subject to a high element of discretion and generous rules (e.g., treating government grants as expenditure for tax purposes, offsetting of income from other investments, etc.) and are not incorporated in the medium-term fiscal framework. Overall, there is scope for further streamlining non-productive, untargeted, and discretionary tax expenditures, and possibly replacing them with accelerated depreciation rules.

#### Tax Expenditure

(Millions of euros)

	2008	2009	2010	2011
1. Direct taxes	5,758	4,653	3,501	3,175
Income taxes	3,814	2,875	2,068	1,742
PIT	3,522	2,642	1,964	1,625
CIT	292	233	104	116
Capital (incl. property)	1,944	1,778	1,433	1,433
2. Indirect taxes	3,086	3,551	3,327	2,354
Transaction taxes	682	603	491	1,096
VAT	565	543	455	1,077
Other (vehicles)	118	60	36	19
Consumption taxes	2,404	2,948	2,837	1,258
Total (1+2)	8,844	8,204	6,829	5,529

Sources: Ministry of Finance; and IMF staff estimates.

**8. Further, tax avoidance schemes are used to reduce tax obligations.** Ambiguities, loopholes, and interpretations of the law are frequently exploited to reduce tax obligations. For example, social security contributions for the self-employed are much lower than those for salaried employees, since the contribution to their funds is not related to income but to years of participation. This makes it attractive to work as self-employed, including because of the weak link between benefits and contributions. Also, since imputed income is often used for the purpose of taxation, there is less of an incentive to declare one's true income, especially as certain real estate investments and equity capital contributions are exempted from the calculation of the presumptive tax base. Furthermore, real estate transaction taxes use the objective, rather than the market, value as the tax base. The discounted VAT rates for the Aegean islands are also open to tax avoidance opportunities, as purchases consumed on the mainland can be channeled through them. Finally, transfer pricing is commonly used by Greek companies to route profits to low-tax jurisdictions.

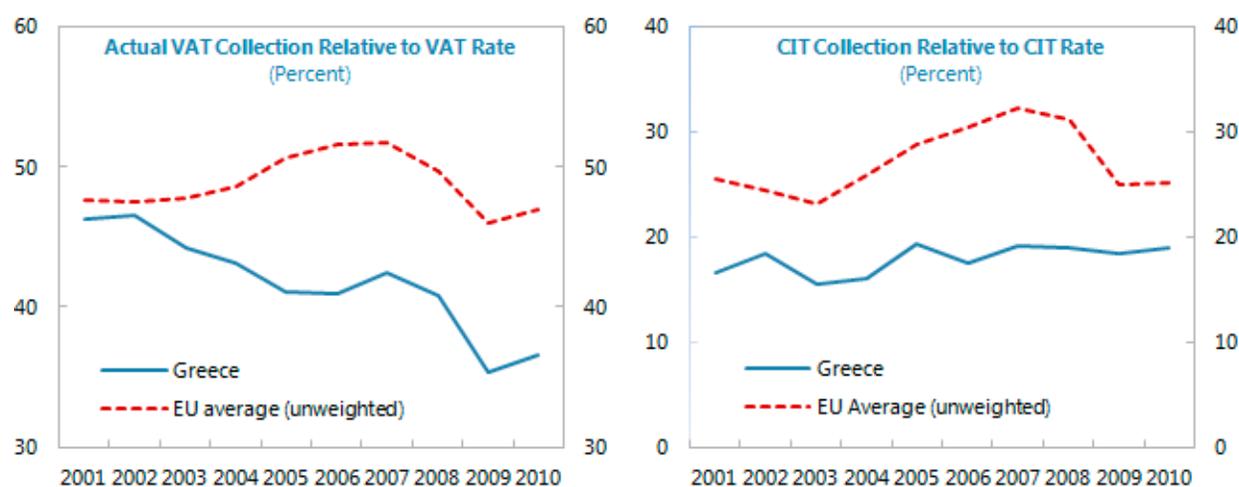
**Table 1. Where is Greece Losing All Its Tax Revenue?**

Channel	Explanation	Estimated Annual Loss
<b>Tax exemptions</b>	Several exemptions for VAT and PIT. Discretionary investment incentives.	2.5% of GDP in 2011
<b>Tax avoidance schemes</b>	Status of self-employed versus salaried employee. Presumptive taxation and objective values. Location specific VAT rates.	....
<b>Non-declaration of taxes</b>	Non-declared labor income and income of liberal professions. Non-filing of VAT. Unrecorded and under recorded transactions.	4%–5% of GDP (Avanidis et al)
<b>Assessed debt through audits is discounted</b>	No audits of the auditors. No tracking of the originally detected amount, discounts, and finally assessed amount. Up to 80 percent reduction of interest and penalty charges on undeclared liabilities.	0.1% of GDP (only a small share of tax liability is collected through audits)
<b>Large share of assessed debt remains unpaid</b>	Insufficient focus of collection effort on new and collectable debts.	5% of GDP
<b>Administrative delays</b>	Extension of filing/payment deadlines. Many and generous deferred payment arrangements. Lengthy court proceedings.	....

Source: IMF staff estimates.

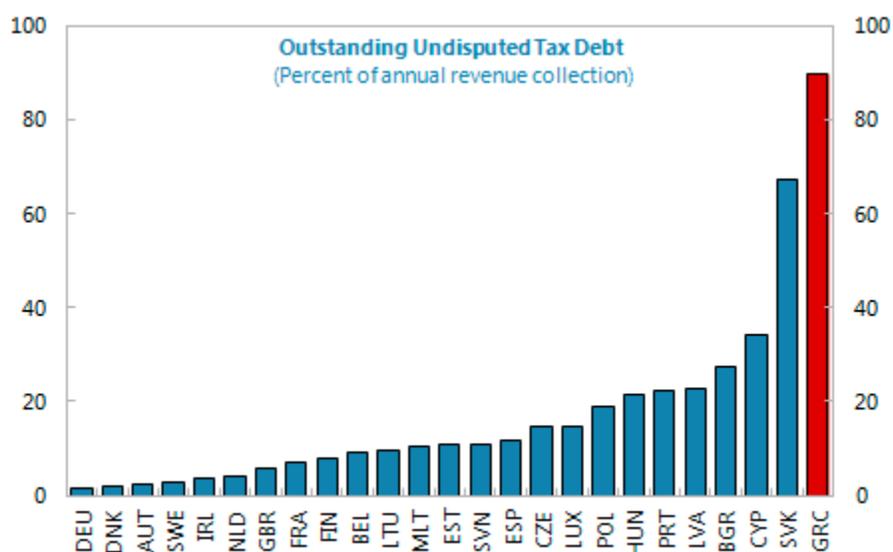
## 9. Standard indicators suggest that there remains significant scope for raising revenue in Greece via stronger collections:

- **VAT and CIT productivity in Greece are very low by EU standards**, in part reflecting reduced and multiple rates and exemptions.



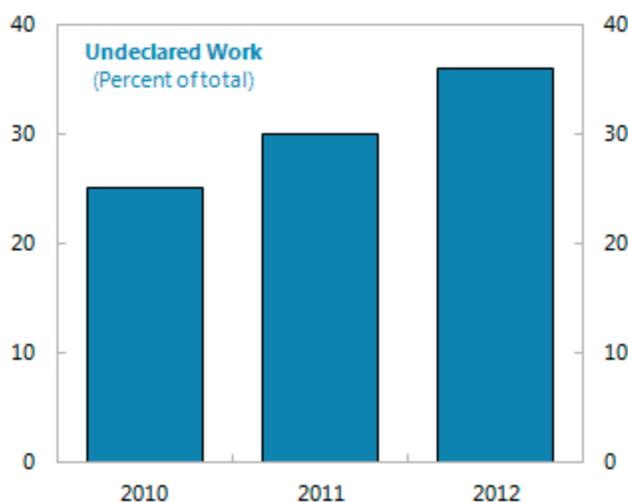
Sources: OECD; IMF, *World Economic Outlook*; and IMF staff estimates.

- **Tax debt in Greece is very high by international standards**, as tax payers fail to pay even what has been assessed.



Source: OECD.

- **A large share of income is never declared.** Inspections by the Labor Inspectorate (SEPE) suggest that about every third employee is not registered. Furthermore, the average declared income of the self-employed is close to the minimum income and well below the GDP per capita, suggesting that a large share of the actual income remains undeclared. Sectors with high “propensity to use undeclared work” are tourism, catering, construction, agriculture, homecare, and commerce. According to Artavanis et al. (2012), actual income could be up to 2½ times larger than that declared by doctors, engineers, and private tutors.



Source: Labor Inspectorate.

**Implied Income to Reported Income**

Profession	Income Multiplier
Doctors and medicine	2.45
Engineering and science	2.4
Education	2.55
Accounting and financial services	2.22
Law	2.24
Fabrication	2.26
Media and art	2.22
Lodging and restaurants	1.99
Construction	1.85
Business services	1.62
Transport	1.51
Agriculture	1.75
Personal services and pharmacy	1.49
Retail	1.27
Others	1.22

Source: Artavanis, et al., 2012.

**10. Because of weak enforcement, a large share of the assessed tax remains unpaid.** In 2012, new debt of €13.1 billion accrued, or 25 percent of total assessed taxes. Of this, only some €1.4 billion were collected (less than 12 percent of revenue). Similarly, for social security contributions, the gap between actual collections and the assessed amount reached 15 percent for IKA, 25 percent for the self-employed fund ETAA, and 65 percent for the agricultural fund OGA in 2012. Overall, unpaid obligations reached €56 billion for taxes and more than €12 billion for social security contributions at end-2012. Enforced collection focuses on the oldest claims, irrespective of their low collectability compared with new debts. Further, the available instruments to enforce collection are inadequate by international standards. Since 14 percent of the debts represent 92 percent of debt value, there is a need for scarce human resources to focus on these debts and for other debt to be subject to automated interventions. As insufficient resources are dedicated to the collection of new debt, such debt quickly becomes uncollectable. Technical assistance advice to dedicate greater resources—at least 10 percent in local tax offices—to collection has also remained unaddressed, and the workforce continues to be dedicated mostly to the assessment of debt.

### C. What Explains the Large Amount of Tax Evasion in Greece?

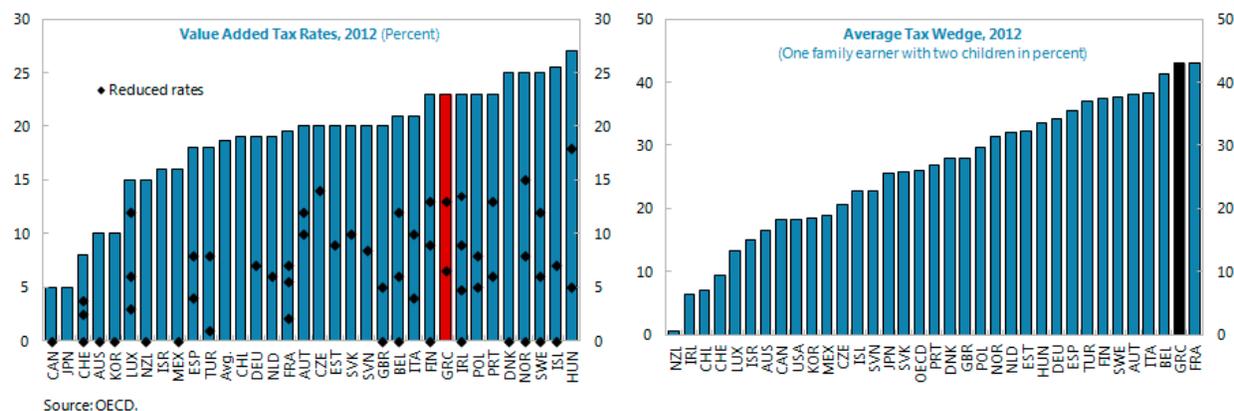
**11. Evasion has generally been modeled as driven by costs and benefits.** On the benefit side are the lower tax payments explained by higher tax rate; on the cost side are penalties combined with the probability of actually being detected. The optimal tax evasion behavior can be described by the following equation (Yitzhaki, 1974):

$$\frac{U'(Y_A)}{U'(Y_U)} = \frac{(1-p)t}{p\theta}$$

where,  $Y_A$  denotes audited income,  $Y_U$  denotes unaudited income,  $p$  represents the probability of detection,  $t$  is tax rate, and  $\theta$  is the penalty on evaded income.

**12. In Greece, the benefits of evasion are comparatively high and the costs are comparatively low.**

- **High tax rates.** High rates create a strong incentive to not declare, since the marginal benefit from hiding any income is high. Tax rates in Greece are at the top end of the OECD range. A tax wedge on salaried employees of 43 percent compares with an OECD average of 26 percent, and the standard VAT rate of 23 percent places Greece among the three advanced countries with the highest VAT rates.



- Low probability of detection.** Historically, there have been a number of problems with conducting audits, such as: (i) focusing on non-filers and non-active companies, with minimal prospects of collecting additional assessed taxes, leaving high-risk cases unlikely to be audited; and (ii) limited probability of detecting undeclared tax liability when an audit is carried out, due to limited use of third party information to detect inconsistencies between declared and actual wealth and income, and lack of access to bank account information. Audits focus on bookkeeping formalities rather than assessment of tax liabilities, reducing auditor productivity.
- Low effective penalties.** While penalties stipulated in the law are generally high in Greece, the probability is very low that these penalties will be fully applied and enforced. For instance, when an audit order has already been sent out, one can still apply for an amnesty on audits. In addition, if an audit detects undeclared liability, the local tax office manager may reduce the penalties for non-compliance (about 100 percent of the tax liability) and the interest for late payment (standard rate per month of 1 percent, not compounded) by up to 80 percent. If the taxpayer settles the final liability immediately, the taxpayer receives a 5 percent cash rebate on the total amount paid and faces little risk of prosecution. If this liability becomes overdue the taxpayer can participate in an installment scheme, which offers additional discounts to the penalties or interest by 50 percent if paid immediately. This reduces the effective interest rate well below commercial lending rates, making it cheaper to not declare taxable incomes even in the case that the actual tax liability is eventually detected (Table 2, Figure 1).

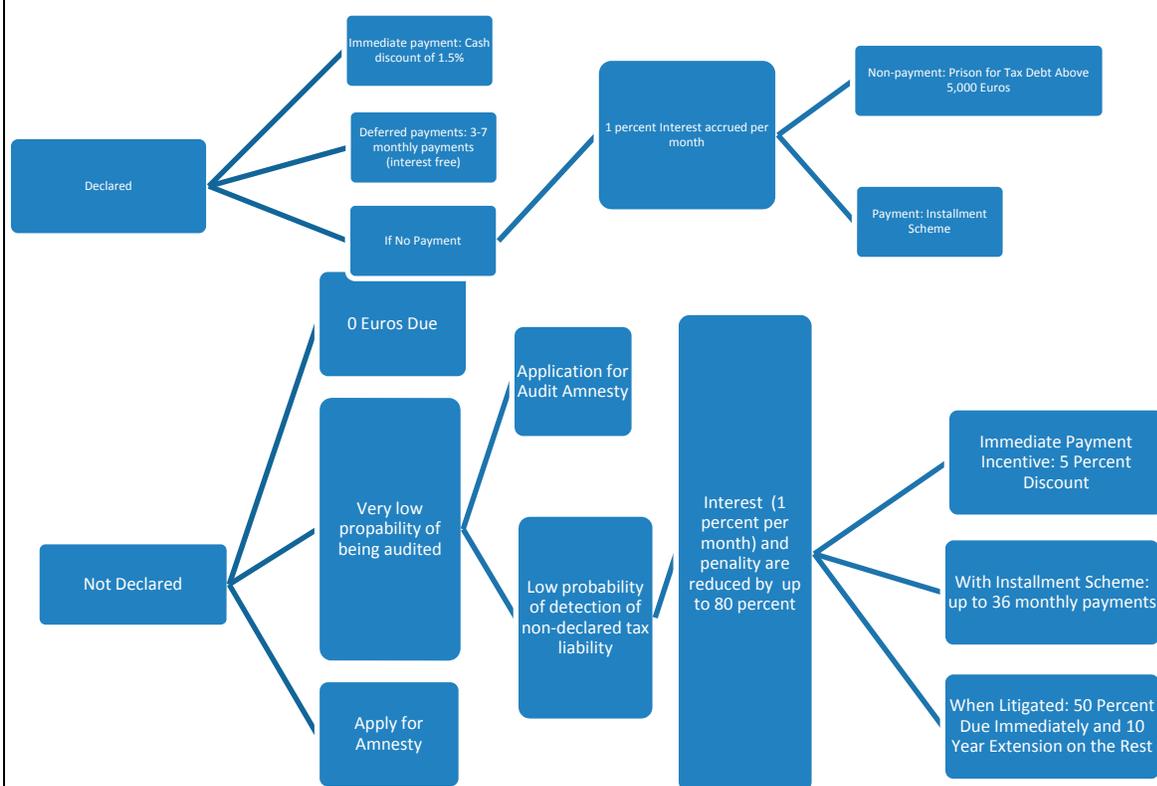
**Table 2. Costs of Alternative Tax Payment Schemes: Bank Loan Deferral Scheme or Payment Following Audits**

(Example for actual tax liability of 100 euros)

Year	Payments Due									
	1	2	3	4	5	6	7	8	9	10
<b>1. Tax liability declared and financed through unsecured bank loan (12 percent interest)</b>	<b>100</b>	<b>112</b>	<b>125</b>	<b>140</b>	<b>157</b>	<b>176</b>	<b>197</b>	<b>221</b>	<b>248</b>	<b>277</b>
<b>2. Tax liability declared and financed through installment scheme (1 percent interest per month)</b>	<b>100</b>	<b>112</b>	<b>124</b>	<b>136</b>	<b>148</b>	<b>160</b>	<b>172</b>	<b>184</b>	<b>196</b>	<b>208</b>
3. Non-declared tax liability detected										
Tax liability	100	100	100	100	100	100	100	100	100	100
Penalty (about 100 percent of tax liability)	100	100	100	100	100	100	100	100	100	100
Standard interest rate (1 percent per month, up to 200 percent of tax liability)	24	48	72	96	120	144	168	192	200	200
Total liability (tax liability plus surcharges)	224	248	272	296	320	344	368	392	400	400
66 percent discount on penalty and interest charges (up to 80 percent)	-83	-99	-115	-131	-147	-163	-178	-194	-200	-200
Final liability due	141	149	157	165	173	181	190	198	200	200
<b>Immediate payment (5 percent discount on total amount)</b>	<b>134</b>	<b>142</b>	<b>150</b>	<b>157</b>	<b>165</b>	<b>172</b>	<b>180</b>	<b>188</b>	<b>190</b>	<b>190</b>
If only 50 percent of actual tax liability detected	67	71	75	79	82	86	90	94	95	95
<b>Payment of overdue obligations under installment scheme (50 percent discount on interest and penalties)</b>	<b>121</b>	<b>125</b>	<b>129</b>	<b>133</b>	<b>137</b>	<b>141</b>	<b>145</b>	<b>149</b>	<b>150</b>	<b>150</b>
If only 50 percent of actual tax liability detected	60	62	64	66	68	70	72	74	75	75

Source: IMF staff estimates.

**Figure 1. Tax Evasions—A Decision Tree**



- **Amnesty.** Frequent use of amnesty schemes has created self-fulfilling expectations of more generous future schemes. For instance, under the last big scheme of 2010 a minor additional tax liability could be paid in exchange for not having the tax returns audited.

**13. Other social and economic factors identified in empirical studies can also help to explain evasion in Greece.**

- **Weak social norm of compliance and a tax system perceived as unfair.** For instance, Andreoni et al. (1998) find that “the taxpayer’s perception of the fairness of the tax system and burden, and that there are moral rules and sentiments” are key factors to explain compliance. With respect to Greece, the lack of political will to tackle tax evasion of certain groups is often perceived as an element of injustice of the system.
- **High dissatisfaction with government services and public goods.** If the individual does not perceive that he gets anything in return from the government, the incentives not to pay taxes are high. Greece has an oversized and inefficient public sector. The level of corruption in the government is high, with Transparency International ranking Greece as the most corrupt country in the EU. The quality of the services delivered by the administration to its citizen is low, requiring often side-payments, queuing time and excessive bureaucratic procedures. As a consequence, citizens depend heavily on costly private services, including for education, health and motorways.
- **Pressure for business survival.** Companies face competition from a large share of companies that do not charge or pocket the VAT, do not pay the high labor tax wedge of 43 percent and avoid CIT/PIT on their income, and are thus able to provide the product or service at much lower prices. Further, the cyclical impact of the deep recession on companies is putting further pressure on companies to evade taxes in order to survive.

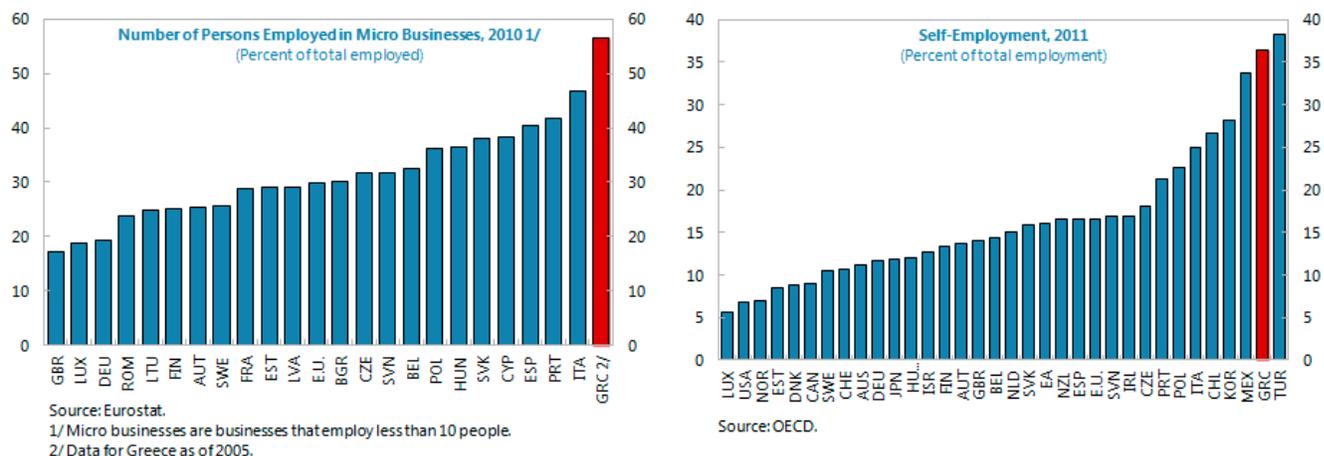
**Table 3. Irrationality of Paying Taxes**

	Compliant Tax Payer	Tax Avoider and Evader
Staying in business	Charges a 23 percent VAT rate on the sale of goods and services, insures all its employees with a tax wedge of 43 percent and declares all its profits. The company will be subject to unfair competition from businesses not being compliant with their tax obligations. Eventually it will go out of business.	Does not impose any VAT, or pockets the VAT, and employment is informal. Even though the company is not very productive, it can stay in business because it benefits from very high margins.
Paying penalties for undeclared work is cheaper than paying contributions	Pays social security contribution for all its employees. The tax wedge on labor amounts up to 43 percent.	On average, every company is visited by the labor inspectorate every ten years. If undeclared employment is detected, the average penalty for an informal employee is Euro500. This is only one month of payment in social security contributions and PIT for a minimum income earner. By law, the labor inspectorate can close business, but this is rarely done.
Not declaring has lower penalties than declaring and not being able to pay	Declares all tax obligations. If he/she does not have the resources to pay the tax debts, borrows from the bank or accrues a tax liability with a monthly interest rate of 1 percent, and the risk of prison charges.	It is estimated that only a small part of the undeclared income is detected in tax audits. The undeclared tax liability as a result of the tax audit assessment will be due only in up to 36 monthly installments. If the taxpayer decides to pay immediately he will receive a cash rebate of 5 percent. The interest and penalty charges can be negotiated to a minimum and if the taxpayer actually pays the tax due there is rarely any risk for him to be prosecuted.
Amnesty schemes are offered	Stays current on all tax obligations.	Waits for the next amnesty scheme. If he/she cannot comply with the payment schedule of the amnesty scheme, then drops out and waits for the next one.
Installment schemes	Pays tax obligations in time, and if needed borrows at market rates from the bank to meet the tax obligations.	Takes advantage of very generous installement schemes, which do not compound interests and offer generous discounts if the total tax liability is repaid.
Going to court is better than paying taxes	After the additional tax debt has been assessed through an audit this must be paid within 36 monthly installments.	Tax payer goes to Court with a projected hearing data in--on average--10 years. In a large share of the tax cases, the court decides in favor of the tax payer.
Deadlines are always extended	Files and pays taxes in time.	Waits for an extension of the filing and payment deadlines or an installment scheme.

Source: IMF staff.

**14. The result of the costs and benefits in Greece is widespread evasion.** Over time, economic organizations have shifted to facilitate to this. The shift in economic organizations has in turn fed back onto the tax administration's ability to detect and enforce, creating a vicious cycle.

**15. Indeed, in Greece, about 35 percent of the labor force is self employed, compared to a European average of 14 percent.** This is mainly driven by tax avoidance and evasion schemes, as self employed carry a lower tax burden and find it easier to hide their income. Further, in Greece about 55 percent of the employees work in companies of less than 10 employees.



## D. The Way Forward

**16. In general, the organization, procedures, and operations in every tax administration change over time.** Reforms are needed to keep up with new challenges in tax compliance and with evolving needs for taxpayer services. Revenue administration reforms have also picked up in the last several years in many advanced countries with a view to reduce costs and support fiscal consolidation. A reform strategy depends on the size of the tax gap and the already existing organizational effectiveness of each revenue administration (Table 4, Silvani and Baer, 1997).

**17. Greece needs a holistic approach to revenue administration reform to achieve effectiveness and flexibility and respond to the outstanding fiscal consolidation needs.** A comprehensive reform strategy is the only possible course, given deep-rooted problems of mismanagement, staff qualification and integrity, and lack of taxpayers' compliance. It is also the only solution to aligning Greece with advanced country practices. Such a comprehensive strategy was provided in 2011 technical assistance advice (IMF, 2011), aiming at: (i) reducing tax evasion and the shadow economy; (ii) improving effectiveness in revenue collection; (iii) eradicating corruption to restore the tax authorities' credibility and taxpayers' confidence; (iv) encouraging voluntary tax compliance; and (v) improving the redistributive effects of the tax system. As problems of political interference and resistance also appeared to run deep, in 2012, technical assistance further determined the need for a minimum level of autonomy of the revenue administration to ensure that a reform strategy can be carried forward (IMF-EC, 2012).

**Table 4. Criteria for Tax Administration Reform**

Tax Gap	Tax Administration Features	Country Examples	Reform Type
<10 %	<ul style="list-style-type: none"> <li>• Organization if well structured, managed, and financed</li> <li>• Staff is qualified and trained</li> <li>• Sanctions are adequate and applied</li> <li>• IT systems are effective</li> <li>• Taxpayer services are widely available</li> </ul>	<ul style="list-style-type: none"> <li>• France, 2008</li> <li>• Netherlands, 2010</li> <li>• U.K., 2010/11</li> </ul>	Adjusting the organization and/or operations to maintain flexibility and meet new challenges.
10–20%	<ul style="list-style-type: none"> <li>• Organization if well structured, managed, and financed</li> <li>• Staff is qualified and trained</li> <li>• Sanctions are adequate and applied</li> <li>• IT systems are effective</li> <li>• Taxpayer services are available</li> </ul>	<ul style="list-style-type: none"> <li>• Austria, 2011</li> <li>• Czech Republic, 2012</li> <li>• Poland, 2011</li> </ul>	Reducing operating costs; taking advantage of new technology; improving enforcement of large, small and unregistered taxpayers.
20–30%	<ul style="list-style-type: none"> <li>• Weak organization and management</li> <li>• Staff may be qualified, but uses corrupt practices</li> <li>• Information exists but ineffectively used to control compliance</li> <li>• IT systems exist but not fully used</li> </ul>	<ul style="list-style-type: none"> <li>• Latvia, 2008, 2011</li> <li>• Lithuania, 2010</li> <li>• Slovak Republic, 2012</li> </ul>	Organizational, procedural, and management reforms to improve effectiveness of operations, change taxpayer behavior.
> 30%	<ul style="list-style-type: none"> <li>• Lack of financial and material resources</li> <li>• Poorly qualified and trained staff</li> <li>• Ineffective procedures</li> <li>• Non-implementation of measures to improve compliance</li> <li>• High turnover of technical staff</li> <li>• Corrupt practices</li> <li>• No taxpayer services</li> </ul>	<ul style="list-style-type: none"> <li>• Peru, 1991</li> <li>• Bulgaria, 2000</li> <li>• Georgia, 2005</li> <li>• Greece, 2010</li> </ul>	A radical and comprehensive reform to modernize all laws, systems, and processes affecting tax collection and creating a well equipped and trained workforce to efficiently and transparently administer the tax system.

Sources: Brondolo et al., 2008; Durand, 1996; EC, 2009; IOTA Tax Tribune, Issue 28, 2011; OECD, 2011; Silvani and Baer, 1997; and. World Bank, 2000 and 2009.

**18. In light of the broader problems with the tax system in Greece, the comprehensive reform strategy extends beyond tax administration reforms.** To improve the effectiveness of the tax administration, it seeks to: (i) simplify the existing tax legislation; (ii) simplify tax procedures; and (iii) reform the governance, organization, and operations of the tax administration (Figure 2). The simpler tax policy regime and tax procedures rules provide greater incentives for taxpayers to comply with their tax obligations and are easier to administer.

**Figure 2. Greece: Revenue Administration Reform Strategy**



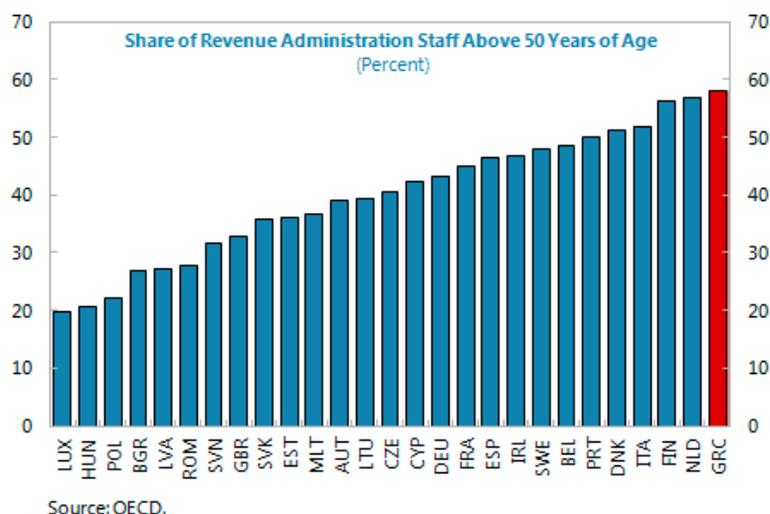
- Simplifying the tax policy regime.*** A new income tax legislation adopted in January 2013 reduced the number of personal income tax brackets from 8 to 3 and eliminated a number of tax credits and deductions. It also reduced the number of tax rates at which different types of capital income are charged. Reforms in the coming months will overhaul the existing Income Tax Code and its amendments into a single piece of legislation and eventually consolidate provisions on tax incentives currently existing in other laws, and simplify the progressive surcharges on rental taxation and overall income. By June 2013, property taxes will also undergo a major reform consolidating the existing state-level property tax (FAP), the extraordinary real estate tax collected by PPC through electricity bills, and the real estate transaction tax. This reform will simplify the multiple rules currently used to assess property tax obligations, establish a common broad base for property taxation, and eliminate widespread uncertainties in tax assessments. Going forward, a simplification of the VAT regime is also needed to reduce the opportunity for arbitrage toward lower rates and create a more stable tax base over the business cycle.
- Streamlining tax procedures.*** The new tax procedures code (TPC) takes over legal provisions that previously existed in the income tax code, tightening provisions for audit, assessment, provision of information, collection enforcement, and dispute resolution. These provisions are intended to clarify filing and payment procedures and set clear deadlines, ease the collection of information relevant for tax assessments, strengthen the ability of the revenue administration to place a lien on a taxpayer's property and dispose of the property to satisfy a tax obligation, impose an interest that compensates the government for the opportunity cost of belated tax

revenue, and charge penalties on late tax and filing obligations in a transparent manner. The bookkeeping code was also simplified in November 2012, and is expected to be streamlined further shortly after the adoption of the TPC.

## 19. Strengthening revenue administration has several components:

- Operational reforms.** There is a need to improve detectability of tax evasion by: (i) adopting segmentation strategies that focus resources where the tax risks are the greatest (e.g., largest taxpayers, high-wealth individuals, and high income self-employed); (ii) improving the incentives and qualifications of staff in these units; (iii) increasing collection of third party information; and (iv) using risk-based approach to audit. Enforcement also needs to be strengthened by: (i) improving debt collection; (ii) adhering strictly to the no amnesty commitment; (iii) introducing installment arrangements in line with international practice; (iv) adhering to filing deadlines; (v) improving dispute resolution and judicial process; and (vi) developing taxpayer assistance strategies to improve voluntary tax compliance. Legislative changes to upgrade operations have already been made. Legal constraints to write-off uncollectable amounts of tax debt have now been removed. Legal obstacles to auditing those cases that represent the highest revenue risk have also been dismantled. Legislation creating formal audit centers for large taxpayers and high-wealth individuals has been passed. Legislation to use indirect audit methods and establish the actual income of taxpayers—rather than rely excessively on presumptive methods of taxation—has also been adopted. Finally, a new legislative framework for installment schemes has been adopted, which is intended to depart from the vicious cycle of extending amnesty schemes.
- Autonomy and organization.** There is a need to remove completely political interference from revenue administration. A law passed in 2012 established the General Secretariat for Public Revenue and required transferring powers from the Minister to the Secretary General over implementation of customs and tax laws related to revenue collection; provided for the Secretary General to appoint heads of units; and required that the Secretary General be a non-political appointment for 5 years. Further legislative changes in March and April 2013 gave powers to the Secretary General to make changes of organizational units without constraints imposed by the Ministry of Administrative Reform (MAREG). Accountability of the revenue administration is strengthened by the provision to establish an advisory board to the Secretary General.
- Resources and staffing.** The Greek revenue administration is aging—with more than 50 percent of staff exceeding 50 years of age. Skills are also lacking across main functions, such as audit and debt collection. However, upgrading staff is notoriously difficult due to a low-entry level pay and a flat grade for auditors, which do not create sufficient incentives for existing and new staff to perform complex tasks. For example, in comparison with revenue administrations in other advanced countries—where the minimum remuneration of an auditor is about 134 percent of GDP per capita, tax auditors in Greece are paid significantly less—at less than 50 percent of GDP per capita. Auditor pay scale distinguishes multiple grades, and auditor remuneration reaches 340 percent of per capita GDP at the highest grades (OECD, 2006). Under newly passed

legislation, the Secretary General is now allowed to determine the grading and promotion system of the revenue administration, which will allow changing staff incentives and encouraging skilled staff to take challenging audit and debt collection functions. The appointment process for staff—while is still under the control of ASEP and constrained by the overall general government hiring constraints—will also be determined by the Secretary General. A code of ethics for the revenue administration that determines standards for professional integrity of staff and an anti-corruption plan for the entire public administration have also been adopted.



**20. Despite significant legislative effort, the reform continues to be challenging.** While started in 2010, it has continuously faced both political and internal resistance to change. The reform has been marred by lack of direction, management, and control from headquarters, especially in periods of political uncertainty: the revenue administration had no head for most of 2012. The process to reshape the organization by scaling down powerful local tax offices and toward a function-based organization has been very slow. As a result, the revenue administration continues to operate under mostly decentralized control, in which eradicating corruption remains a major challenge. Efforts to upgrade the quality of audit staff through both external recruitment and internal certification have mostly failed due to union resistance and management inability to effectively reassign staff.

## E. Change: How and How Quickly Can It Happen?

**21. Other countries offer useful lessons on the key ingredients for successful transformations:**

- ***Unequivocal political support to reform is a common factor for success*** (Table 5). The reform undertaken in Hungary in the early 1990s, which sought to improve collection and audit capacity and upgrade the IT system, saw rapid initial progress under the powerful supervision of the president of the tax administration agency. The agency had been established in the late 1980s as a semi-autonomous organization, with non-political leadership having sufficient powers to implement organizational reforms. However, a government change led to a change in governance, as the position of the president of the tax administration became a political appointment. Political interference in agency affairs continued throughout the mid-1990s, which caused reform delays and eventually hampered the adoption of new audit selection methods.

**Table 5. Country Experiences with Institutional Reforms**

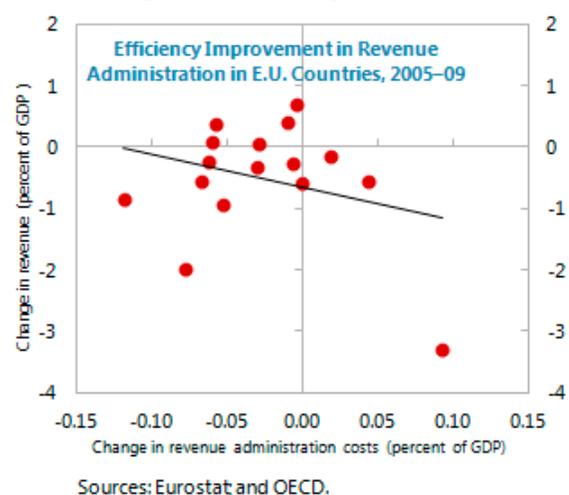
Country	Type of Reform	Period
Revenue Administration Reforms		
Latvia	Consolidating regional offices and reducing the structure of the organization from 23 to 15, mostly functional, units.	2008–09
Bulgaria	<ul style="list-style-type: none"> <li>New unified revenue administration; consolidating 340 offices into 29; upgrading functions; merging SSC collection into tax administration; IT platform.</li> </ul>	2000–09
	<ul style="list-style-type: none"> <li>Further reduction of offices from 29 to 7.</li> </ul>	2009
Chile	Activating an anti-evasion plan, expanding large taxpayer audit staff; new decentralized work force for cash economy measures; information technology upgrades.	2002–09
Georgia	Reorganized tax headquarters and field units; New tax code and simplified administrative procedures; abolishing compulsory audit of all annual filings and adopting a risk-based approach to tax audits; compulsory electronic filing; new two stage administrative dispute resolution mechanism.	2005–07
FYR, Macedonia	New tax procedures law; restructuring of headquarters and field offices; Creating large taxpayer office; flexibility in hiring, firing, rewarding staff; integrating collection of social insurance contributions to tax agency.	2005–09
Peru	Creating an independent revenue administration agency directly reporting to the president with full budget flexibility.	1991–95
Hungary	<ul style="list-style-type: none"> <li>Comprehensive: reorganizing the HQ office; creating an LTU; improving VAT and PIT procedures: new arrears management approach.</li> </ul>	1993–96
	<ul style="list-style-type: none"> <li>IT upgrade; Improving audit selection.</li> </ul>	1996–98

Sources: Durand, 1996; IOTA Tax Tribune, Issue 28, 2011; and World Bank, 2000 and 2009.

- A reform program office charged with reform implementation is needed to break through stiff resistance.** Many modernization programs fail due to failure to manage the complexity of reform while keeping up with the overwhelming nature of the day to day business demands on a few key leaders. The reform of the Peruvian revenue administration in 1991 is one of the best examples of efficient transformation within a public service. The country was engulfed in a crisis that exacerbated already deeply bureaucratic and corrupt practices. The policy team in charge of the revenue administration reforms had the highest political support and comprised a number of reformed-minded members with spotless reputation and strong technical skills. The team developed and carried out a sweeping plan since experience had already shown that incremental changes were prone to setbacks, resistance, loss of political support, and reform fatigue. The element of surprise—both for taxpayers who saw unyielding new revenue

administration staff and for the labor union that resisted the change—yielded results and was possible due to a careful selection of a new generation of university educated recruits to handle difficult compliance cases.

- **Timing is essential.** Swift reform implementation has been shown to secure an early gain from demonstrating political will and value for money. Bulgaria’s transformation of the revenue administration took almost 10 years. Despite impressive efficiency gains made during the period, the revenue agency remained hampered by large operating costs in the wake of the global financial crisis. Of 29 existing regional offices, only 7 collected 80 percent of revenues. A decision to further rationalize the organization of the revenue agency would support the government’s objective to keep public administration costs low while improving efficiency. However, as memories of the previous long-lasting reforms were still fresh, the reorganization had to be completed rapidly to avoid resistance, high staff turnover, drop in morale, and efficiency loss. This was done in four months at the end of 2009, containing reform costs within the current fiscal year and budget envelope.
- **Reforms should focus on the areas that have the highest revenue potential.** Reforms in a number of countries have shown large revenue gains once the institutional organization was shifted from a regional to a function based model and refocused on large tax payers, debtors with large tax liabilities to the government, and stronger enforcement. In Indonesia, given the lack of capacity to introduce comprehensive reforms, the authorities initially focused only on collection and audit of large taxpayers. Strengthening enforced collection raised the revenue ratio by  $\frac{1}{4}$  percent of GDP, while the establishment of a large taxpayer unit increased revenues by  $\frac{3}{4}$  percent of GDP over 4 years. Revenue gains could be higher over a longer period of time—Bulgaria increased tax and SSC collection by 5 percentage points of GDP, and VAT collection alone, where non-compliance had been rampant, by 3 percentage points of GDP over a 6-year period. In the most successful cases, such as Georgia where tax revenues increased by 6 percent of GDP in 2005–07, substantial revenue gains could be achieved even within a medium-term horizon. Experience in the European Union more broadly has also shown that rationalization of revenue administration costs has been associated with an increase in the revenue ratio in the subsequent year, most of which is in indirect taxes.<sup>2</sup> Therefore, there is a strong argument to focus resources on narrowing the VAT gap.



<sup>2</sup> Based on panel data estimation using annual data for the 27 EU countries during 2007–2011 with the dependent variable being tax revenue to GDP and independent variables being cost of tax administration as a share of GDP and the number of hours needed to complete tax filing and payment requirements. The results show that a decline in tax

(continued)

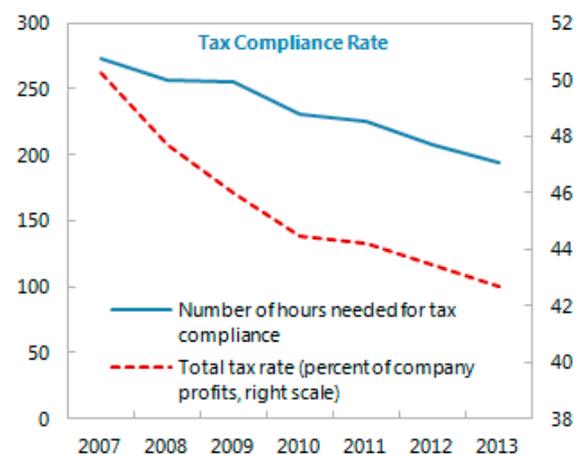
- **Staff reductions in the revenue administration can help improve the quality of staff and overall efficiency.** Cost reductions have been a main factor to undertake revenue administration reforms in advanced countries and in several emerging economies in recent years (OECD 2011). In 2008, the Latvian revenue administration refocused the organizational model on functional basis, removing the need to maintain large support staff in regional offices. The reorganization led to a staff reduction by 10 percent while the reform was still ongoing in 2008–2009, and an additional reduction of 13 percent in the following 2 years. The rationalization of regional offices in Bulgaria brought a reduction of staff by 8 percent in 2009 alone, which added to a 13 percent reduction from the previously completed reforms. In some cases, the rationalization also required demotion of mid-level managers due to the smaller office network. The reforms in Peru in the early 1990s led to the dismissal of 2/3 of the existing staff. In all cases, resources released from the reduction of staff were used to improve the incentives, qualifications, and career prospects of employees who were reallocated to the newly created functional units.
- **A new generation of tax administration officials changes the culture and creates a new public image of the revenue administration.** During the reform carried out in Peru in the early 1990s, strict criteria were set for recruitment of new staff. More than 15,000 applicants were tested, many interviewed, and only 3 percent selected. The recruitment was carried out by the revenue administration’s training institute, which then completed specialized training in legal matters, audit, tax collection, and ethics. Comprehensive reforms in other countries—Georgia, Bulgaria, and the Baltic countries—also introduced new hiring, grading, promotion and training policies seeking to establish a new professional workforce. Codes of ethics, strict reprimands for accepting gifts—even outright dismissal as in Peru—and regular rotation of auditors also helped raise the level of professionalism and integrity in these countries.
- **Passing through the organizational reforms allows the revenue administration strategy to focus on better compliance even in the most difficult circumstances.** The 2009 crisis found Latvia with a 23-percent reduction in revenues and almost 3 percentage point of GDP reduction of the revenue ratio relative to 2008. Nonetheless, the 2008–2009 reforms allowed taxpayer categories with large risk of non-compliance to be identified more easily. It also helped reallocate resources faster to tasks that would require greater emphasis—reinforcing tax debt recovery, filing processes, audit, and measures to combat criminal activities. Before the crisis hit, Estonia had also undergone organizational changes merging core functions, reducing support staff, and focusing on efficient tax debt collection and a new tax refund system. These changes provided a good platform to handle large tax arrears, including by providing installment plans to viable enterprises. Small debt installment arrangements were provided on the basis of automatic risk criteria, while specialized staff was reallocated to handle more complex cases, where assessment of business viability was more difficult. The new VAT refund system also allowed

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administration costs by 0.1 percent of GDP is associated with an increase in the revenue ratio by 0.8 percent of GDP and in indirect taxes by 0.7 percent of GDP in the subsequent year.

more efficient scrutiny of high-risk VAT refund claims. A plan to improve compliance in Peru was also possible only after the first stage of reorganization was completed. This is because a good compliance plan relies both on strict law enforcement and capacity of revenue administration to provide quality taxpayer services.

- **Tax rate reductions should be used to support the reforms.** The improvement in voluntary tax compliance and increased collection efficiency in Bulgaria allowed reduction of tax and social contribution rates. This helped reduce business informality by about 30 percent in 2002–2008. Reduction in tax compliance costs—a comprehensive tax reform combined with introduction of e-filing—has helped buoy tax revenues in Georgia and reduce the tax burden on companies by more than 20 percentage points of company profits since 2007. In advanced economies, experience in the EU since 2007 has also shown that reforms that have aimed at reducing revenue administration costs and compliance costs for the taxpayers—in terms of hours spent—have led to an increase in revenue and a subsequent reduction in the tax burden on companies. In particular, IMF staff estimates suggest that a decline in the hours needed for compliance by 100 could increase the revenue ratio by about 0.2 percent of GDP and allow a reduction in the tax burden on businesses—the ratio of total taxes payable by a business as a share of profits—by 1.3 percentage points.<sup>3</sup>



Source: Price Waterhouse Coopers, *Paying Taxes 2007–13*.

## F. Conclusions

**22. Experience in other countries shows that a change in tax administration requires significant effort and could take time.** The review of the empirical factors has shown that the prevalence of tax evasion in Greece is partly the result of administrative capacity and partly because of fundamental flaws in the design of the incentive and penalty structure of tax administration. While several factors are less under the control of the Greek government (e.g., decentralized economic structure), others can be addressed immediately through changing and enforcing laws:

- **Simplifying the tax system to remove tax avoidance schemes and ambiguities.** This provides certainty for the taxpayers and reduces the administrative costs for tax administration, including litigation costs for tax assessment disputes.

<sup>3</sup> The results are based on a panel data estimation using annual data for the 27 EU countries during 2007–2011 with the dependent variable total tax rate and the independent variables cost of tax administration as a share of GDP and the number of hours needed to complete tax filing and payment requirements.

- **Establishing a legal and institutional framework that makes it rational to comply with the tax law.** This includes increasing the effective penalties, improving the enforcement mechanism, and adhering to a policy of no new amnesty schemes. Over time, improved revenue collection should provide the basis for reducing the high marginal tax rates, which will further increase the incentives to comply.

**23. More complex reforms relate to:**

- **Changing the governance of the revenue administration.** Change should come from the top, where strong leadership is important to break with old practices, design a more flexible organization that can fight tax evasion, and provide the right incentives to staff.
- **Focus the revenue administration on those functions that have the greatest revenue potential.** This requires placing more effort and greater resources in the audit centers for large tax payers and high-wealth individuals, where the risk of non-compliance is the greatest. Boosting the large debtor unit will help improve enforcement as well as maximize the compliance with the newly introduced installment schemes.
- **Fighting corruption within the administration.** This will increase the share of tax payments that end up with the government, but also will create incentives to comply as the money paid is used for services to the tax payer rather than misused by a few individuals.

**24. Finally, reforms in other parts of the public administration will help with synergies.** The efficiency of the judicial system may determine whether efforts to improve detectability and enforcement will yield results. Reforms in public financial management in general could boost budget flexibility of the revenue administration. Reforms in real estate regulation and taxation will help with enforcement and tax and SSC debt collection. The whole-of-government anti-corruption plan is key to create a new culture of integrity in a public administration where mobility is set to become an important feature in the near future.

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# HOW CAN THE FINANCIAL SECTOR SUPPORT RECOVERY?<sup>1</sup>

*Evidence from past financial and economic crises suggests credit growth is likely to take several years to recover. Other countries have achieved growth even as credit shrank, but so called “creditless recoveries” tend to be weak. Based on empirical models from the literature, we find that Greece is likely to go through such an episode. The priority, therefore, should be to minimize its duration. Experience shows that dealing with non-performing loans decisively and promptly is a critical precondition for a resumption of bank lending. Given Greece’s high NPLs, this points to the need for a strong focus on designing and implementing debt restructuring frameworks as well as improving banks’ loan resolution practices. These steps will be necessary to remove doubts about the sufficiency of bank capital and restore balance sheet health so that Greece’s banks are positioned to support the economic recovery.*

## A. Introduction

**1. Unlocking credit is key to financial sector support for growth in Greece.** The overall growth strategy relies on shifting resources from less to more productive uses. The financial sector can facilitate this process by financing necessary investment. In this paper, we discuss what international experience suggests about the prospects of credit growth in Greece in the short to medium term. We also focus on one critical aspect of the authorities’ adjustment program in ensuring effective functioning of the financial sector going forward, i.e., the design of a framework for private sector debt restructuring. We discuss some of the legal and institutional obstacles currently in place in Greece that would prevent an effective debt restructuring process, and review international experience and best practices in this area.

## B. Creditless Recoveries: Is there a Contradiction?

**2. Credit growth is expected to lag the recovery in output by at least two years and grow more slowly than nominal GDP for some time in the medium term** (see Figure 1, and Box 1). This raises two important questions: First, is this projection consistent with our output growth assumptions, and second, is it in line with the experience of other countries emerging from crises?

**3. International experience shows that a flat or even falling credit is not inconsistent with output growth.** In fact, creditless recoveries, as they are referred to in the literature, are not uncommon. Several studies in recent years have documented the frequency and determinants of creditless recoveries. Abiad et al. (2011) find that one in five recessions is followed by a creditless recovery (based on a sample of advanced, emerging and lower income countries). Bijsterbosch and

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<sup>1</sup> Prepared by Maral Shamloo.

Dahlhaus (2011) find that one in four recoveries is creditless (in a sample of low to middle income countries).<sup>2</sup> Both studies find that this frequency doubles if the recession is preceded by a banking crisis. Examples include Indonesia, Malaysia and Thailand in the aftermath of the Asian crisis, and Argentina and Uruguay in the aftermath of the Argentine sovereign default. More recently, Latvia, Iceland, and Ireland all experienced creditless recoveries. Real credit growth in Latvia and Ireland is still shrinking fast, despite positive GDP growth for both economies since 2010. In Iceland, real credit continued to shrink until early 2012, 6 quarters after GDP growth turned positive, and has slowed down since (see Figure 2).

#### **4. There are different ways in which output growth can be supported even in the absence of growth in banking sector credit:**

- **First, firms may finance themselves using non-bank resources.** For instance, firms can use internal capital generation, FDI or trade credit, or raise funds in capital markets. This substitution may lead to the observation of creditless recoveries when credit is measured as bank credit only. This theory is consistent with the findings of Abiad et al. (2011) that, during creditless recoveries, industries that are more dependent on external finance tend to grow disproportionately less than those that are more self-financed. In Greece, internal capital generation could be an important source for financing investment, at least for the non-SME sector (SMEs make up a large fraction of Greek enterprises). The Greek non-financial corporate sector has a large and positive net international investment position (around 30 of GDP). Greek corporates' net-savings (after investment) is also very large compared to the stock of credit. Net annual savings of Greek corporates was on average 11 percent of the stock of corporate sector credit, and this shot up to close to 20 percent in 2012, both due to a contraction in the credit stock and due to less investment by the firms. By comparison, Euro area firms were net borrowers in 2012 (Figure 3).
- **Second, creditless recoveries may be associated with a process of reallocation from some sectors to others.** If this is the case, gross credit flows will go undetected when looking at net flows (see Claessens, et al., 2008). In Greece, as the economy shifts from non-tradable sectors such as construction to more tradable sectors (such as export sector and services), banks can reduce credit to certain industries and channel it toward others. If there are differences in productivity, this reallocation will be accompanied by growth. Indeed, this process is already underway. The 15 percent reduction in overall outstanding credit since mid-2010 masks sectoral differences in credit allocation. Publicly owned industries such as utilities as well as the mostly privately-owned tourism sector have expanded their balance sheets at the expense of even larger than average deleveraging in the wholesale and retail trade sectors, non-shipping transportation and professional and support activities.<sup>3</sup>

<sup>2</sup> Also see Calvo et al. (2006a and b), Biggs et al. (2009), Coricelli and Roland (2011), and Claessens et al. (2008).

<sup>3</sup> The stock of credit to shipping industry has also reduced dramatically. But this is due to shipping firms substituting credit from Greek banks for foreign ones, for cost reasons.

- **Third, if GDP recovers mainly through absorption of unused capacity as opposed to new investment, the recovery may be creditless** (see Calvo et al., 2006a, 2006b). In Greece, capacity utilization has decreased (see Figure 3), indicating that an initial rebound in activity might not require new investment.

**5. This is not to say that creditless recoveries are desirable or costless.** Several studies find that creditless recoveries tend to be weak, with subsequent growth on average a third lower than in normal recoveries. Importantly, Abiad et al. (2011) find that investment—which is more likely to depend on credit than consumption—makes a disproportionately smaller contribution to growth in creditless recoveries relative to other recoveries. This does not bode well if the growth strategy is an investment-based one.

**6. Based on established patterns associated with creditless recoveries, it seems very likely that Greece will experience one** (see Box 2). Research suggests that creditless recoveries are often preceded by large output losses, banking crises, and high private sector indebtedness. We use two econometric models to forecast the likelihood of a creditless recovery for Greece, based on factors found to be closely correlated with such episodes, and their contribution to the probability of such occurrences. Both of these models indicate that there is a very high probability that the stock of real credit will shrink for the next three years in Greece. Three main factors contribute to the high likelihood that Greece will see a reduction in the stock of real credit going forward. First, and by far the most important, is the concurrence of a banking crisis with the recession; second, is the large reduction in real GDP; and third, is the relatively high credit to GDP ratio. The latter is due to the fact that GDP has shrunk by close to 25 percent since the onset of the crisis, whereas the reduction in credit has been considerably milder so far.

### Box 1. Credit Projections in the Macroframework

**Our baseline projections show a negative growth in private sector credit until Q2 of 2016, 8 quarters after GDP growth turns positive** (see Figure 1). Our projections are based on the following assumptions:

- In 2013, the projected fall in deposits (-1.2 percent, y-o-y in December) is significantly lower than the contraction in nominal GDP (-5.4 percent, y-o-y in December), based on our assumptions about a partial return of private sector deposits that left the system in 2011–12, mainly due to confidence reasons. This trend is assumed throughout the year.
- From 2013 to the end of 2016, private sector deposits are assumed to grow at the same rate as nominal GDP, stabilizing at 92 percent of GDP which is in line with 2008 average.
- Credit flows are calibrated to achieve two objectives: i) reduction in central bank financing to 15 percent of total liabilities, in line with the stated aim of the old funding plans<sup>1</sup>; and ii) a reduction in the loan to deposit ratio towards its pre-crisis long-time average of 80. Credit thus is projected to grow more slowly than deposits.
- In terms of components of credit growth, a reduction in credit for housing and consumer lending is assumed. This is based on our assumptions about a further correction in property prices, and slower improvement in household disposable income compared to nominal GDP.

#### Credit and Deposit Growth Rates

	Average, 2005–08	2009	2010	2011	2012	2013	2014	2015	2016	
						Proj.				
	(Year-on-year percent change)									
Real private sector credit growth	14.6	-2.2	2.1	-4.6	-7.7	-6.3	-2.5	-1.4	0.5	
Nominal private sector credit growth	19.1	0.0	3.3	-3.6	-8.4	-7.3	-2.8	-1.0	1.6	
Housing	33.4	3.7	-0.1	-2.6	-4.8	-8.7	-4.7	-2.9	-0.4	
Nonfinancial corporations	13.0	-0.3	-5.9	-3.0	-10.8	-5.4	-0.6	1.3	3.8	
Consumers	26.8	-1.1	-3.7	-7.9	-8.0	-10.2	-6.1	-4.4	-2.0	
Deposit growth	15.1	-0.5	0.5	-17.1	-5.8	-1.2	0.4	3.9	5.8	
	(Percent)									
Ratios										
Credit to GDP	91.6	108.0	116.1	119.2	117.5	115.2	111.7	107.0	103.6	
Central bank liabilities to total liabilities	3.3	10.1	19.0	16.1	27.4	21.6	19.1	15.8	12.8	

Sources: Bank of Greece; and IMF staff estimates and projections.

<sup>1</sup> The funding plans were developed by the EC/ECB/IMF in coordination with the Greek banks in 2011 as a way to monitor and project the banks' funding profile going forward. They had to be abandoned in the autumn of 2011 when accelerated deposit outflows and political uncertainty made these projections increasingly difficult.

### Box 2. Estimating the Likelihood of a Creditless Recovery for Greece

To estimate the probability that Greece's recovery will not be accompanied by a pick-up in credit, we use some of the macro determinants for creditless recoveries identified in two panel probit models estimated by Bijsterbosch and Dahlhaus (2011) (henceforth BD) and Abiad, et al. (2011) (henceforth ADL).

The baseline specification in both models is a static panel probit model, i.e.,

$$y_{it}^* = X_{it} \beta + \varepsilon_{it}$$

$$y_{it} = I(y_{it}^* > 0), i = 1, \dots, N, t = 1, \dots, T$$

where  $I(y_{it}^* > 0)$  is an indicator function which transforms the latent variable  $y_{it}^*$  into a binary variable  $y_{it}$ .  $y_{it}$  indicates whether country  $i$  at time  $t$  has entered a creditless recovery. BD's estimation is based on the following definitions. First, they identify a "trough" year when GDP is at its lowest in cyclical terms and at least one standard deviation below zero, where cyclical GDP is defined as deviation from trend. Denoting the year of the trough as  $t$ , the onset of a recovery is defined as  $t+1$ . Second, they identify creditless recovery as one where the real private credit level in  $t$  is higher than in  $t+3$ , in other words, creditless recovery is defined as an average reduction in real private credit for the three years after the trough.

Table (1) shows the estimated coefficients of BD's probit model under different specifications. Their results show that creditless recoveries are typically preceded by large declines in economic activity and financial stress, suggesting that impaired financial intermediation may play a key role in lackluster credit flows that follow.

The ADL model is a simple probit estimate where the dependent variable is a dummy indicating whether the recovery from the downturn was creditless, where such episodes are again defined as average negative growth in real private sector credit for three years. The regressors include two dummies indicating whether the downturn was preceded by a banking crisis and a credit boom, and a measure of the severity of the downturn, the peak-to-trough percent change in real GDP.<sup>1</sup>

Table (2) shows the estimated coefficients. Based on this, ADL conclude that the likelihood of creditless recoveries increases when the downturn was preceded by a credit boom or a banking crisis. Consistent with financial accelerator models, the more severe the downturn, the greater the likelihood that subsequent credit growth will be weak.

<sup>1</sup> Credit booms are defined according to the methodology developed in Mendoza and Terrones (2008). Banking crises are as defined by Laeven and Valencia (2008).

## Box 2. Estimating the Likelihood of a Creditless Recovery for Greece (continued)

### Results

To apply the BD model to Greece, we need to first identify the trough year according to their definition, i.e., when the output gap is at its largest. According to our estimates, this corresponds to 2013, when the output gap reaches -10 percent. Thus, applying the authors' definition of a creditless recovery, the probit model predicts the probability that real private sector credit in 2016 will be lower than in 2013.

We take the regression coefficients and use Greek data to estimate the probability that the latent variable is greater than zero given a standard normal distribution of the errors. The inputs to both models are shown in the last columns of tables (1) and (2).

Tables (3) and (4) show the resulting probabilities under different specifications for the BD and ADL models, respectively. In the case of the BD model, under the authors' preferred specification (specification 4, which has the highest Pseudo R<sup>2</sup>), the probability that Greece will enter into a creditless recovery is 61 percent. Is this a strong result? Under this specification, the authors' estimated probability of a Type I error for a threshold of 50 percent is 0.4 percent, i.e., based on their sample, the probability of a false alarm — given the model prediction of 61 percent likelihood for a creditless recovery — is negligible.

Using the ADL results, we find that applying their specification (5) with the highest Pseudo-R<sup>2</sup> to Greek data implies a creditless recovery probability of 79 percent. Although ADL do not report the probability of Type I error associated with different threshold levels, their chosen threshold for predictive probability is 40 percent, indicating that the 80 percent probability projected for Greece is associated with a very low Type I error.

Note that BD exclude advanced economies from their sample. ADL find that creditless recoveries are more common in low income countries and emerging markets than in advanced economies (25 percent in the former compared to only about 10 percent in the latter). Therefore, it could be argued that using BD coefficients to predict the probability of a creditless recovery for Greece suffers from an upward bias. Even so, advanced economies generally have a large capacity to provide liquidity and capital to their financial institutions since they issue their own hard currency, but Greece's capacity as a member of a currency union and with no fiscal space is constrained.

The probit model estimated by ADL has the advantage that it is based on data from emerging and advanced countries. However, the disadvantage is that their pseudo-R<sup>2</sup> is smaller, indicating a smaller predictive power compared to the BD estimates.

Nevertheless, both models indicate that Greece today looks much more similar to previous crisis cases where a recovery in credit lagged output, than to those that saw a swift return of bank lending.

**Box 2. Estimating the Likelihood of a Creditless Recovery for Greece (concluded)****Table 1. Bijsterbosch and Dahlhaus (BD) Panel Probit Estimation**

	(1)	(2)	(3)	(4)	Greece (2013)
Real GDP growth	-9.49	-8.87	-9.43	-11.24	-4.21
Credit to GDP	0.64	0.56	0.56	0.67	115.15
Currency crisis	...	1.10	0.87	0.90	0.00
Banking crisis	...	1.20	1.37	1.34	1.00
Current account to GDP	...	...	-1.63	-1.69	-0.72
Investment growth	...	...	...	-0.18	-3.96
Export growth	...	...	...	0.09	0.93
Constant	-2.11	-2.24	-2.31	-2.33	n.a.
Pseudo R2	0.24	0.36	0.39	0.43	n.a.

Source: IMF staff estimates.

**Table 2. Abiad, et al. (ADL) Panel Probit Estimation**

	(1)	(2)	(3)	(4)	(5)	Greece
Banking crisis	1.112	...	...	1.035	0.931	1.0
Credit boom	...	0.602	...	0.458	0.440	0.0
Peak-to-trough percentage change in GDP	...	...	-0.048	...	-0.045	-23.5
Constant	-1.029	-0.990	-1.023	-1.084	-1.187	1.0
Pseudo R2	0.060	0.020	0.120	0.070	0.170	n.a.

Source: IMF staff estimates.

**Table 3. Estimated Latent Variables and Probabilities for Greece (2013) Using Implied BD Model**

	(1)	(2)	(3)	(4)
$X_i\beta$	-0.97	-0.02	0.11	0.28
$\Phi(X_i\beta)$	0.17	0.49	0.55	0.61

Source: IMF staff estimates.

**Table 4. Estimated Latent Variables and Probabilities for Greece Using Implied ADL Model**

	(1)	(2)	(3)	(4)	(5)
$X_i\beta$	0.08	-0.99	0.11	-0.05	0.81
$\Phi(X_i\beta)$	0.53	0.16	0.54	0.48	0.79

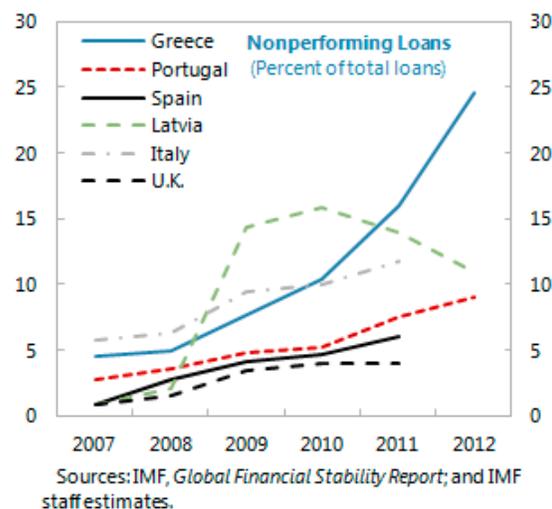
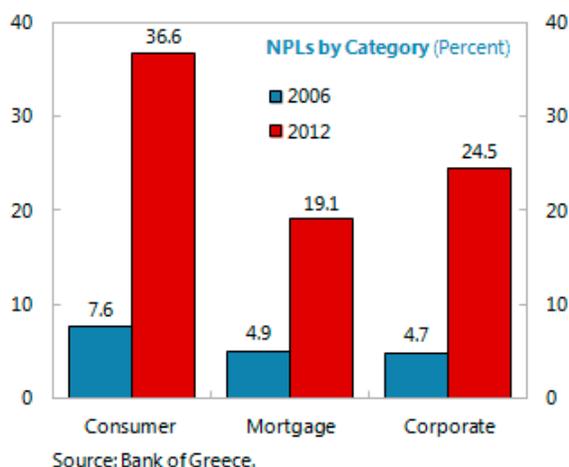
Source: IMF staff estimates.

## C. Policies

**7. Research suggests that creditless recoveries are the result of impaired financial intermediation and their lower growth performance is the outcome of constraints on the supply of credit** (see Kannan (2009), Abiad et al. (2008) and Claessens et al. (2008)). Creditless recoveries double in frequency after banking crises, suggesting that they are associated with disruptions in credit supply. Firm-level evidence confirms this: firms more reliant on external financing, or those with fewer assets eligible as loan collateral, or industries that are populated by smaller firms, grow more slowly during creditless recoveries compared to firms or industries that rely on other sources of finance. Investment makes a disproportionately lower contribution to growth than in “normal” recoveries and productivity is adversely affected. This result is also consistent with “financial accelerator” models where financial intermediation is disproportionately affected in downturns, reinforcing the slowdown in economic activity.

**8. Policies aimed at restoring credit supply should lead to fewer credit constraints and higher growth.** Creditless recoveries are significantly weaker than normal recoveries. To the extent that credit supply constraints contribute to slow recovery of credit, and thus output, policy measures that facilitate financial intermediation will help a stronger recovery. In particular, policy measures should aim at removing the obstacles to efficient financial intermediation, which will vary from case to case.

**9. Going forward, funding, capital, and an NPL burden will impose constraints on the Greek banking sector’s ability to lend.** Greek banks lost access to wholesale funding markets in 2010 and had to replace €65 billion in maturing liabilities through divesting foreign assets. The funding gap became wider with deposit outflows in 2011 and 2012, during which time the banks lost close to a third of their deposits. As a result, they relied heavily on central bank financing. As banks return to normalcy, the speed with which they reduce their reliance on central bank financing may prove to be a constraint on their ability to extend new loans. Banks face uncertainties regarding the adequacy of their capital too. The 2011 stress test was conducted under milder assumptions about macroeconomic developments than those realized. As a result, NPLs have risen more rapidly than anticipated, and banks may be unwilling to take on more risk until they have successfully dealt with their existing NPLs. These problems are inter-related: NPLs affect bank capital directly through provisioning needs, through reduced profits (which when the banks are incurring losses translate directly into more capital needs), and through an increase in risk weighted assets. High NPL ratios also imply higher funding costs for the banks when they return to markets.



**10. In Greece, the priority for restoring a healthy financial sector is dealing with the banks' balance sheet stresses through restructuring programs.** Asset quality is the single most important risk factor for capital adequacy. Implied losses from existing NPLs already exceed the projected 3-year losses assumed by the BlackRock exercise. So unless the banks are able to arrest or significantly slow down the deterioration in their loan portfolio, or limit the losses arising from troubled loans, for instance through effective restructuring programs, they may face capital shortfalls. Restructuring the loans of viable but over-indebted borrowers is critical for easing the private sector's debt overhang, as well as addressing the large stock of existing and potential NPLs on banks' balance sheets. Given the important role that debt restructuring and NPL resolution play in the health of financial sector, for the remainder of this paper we focus on the elements of a successful debt restructuring framework and policy lessons learned from international experience.

**11. NPLs are a drag on credit growth and normal functioning of the banking system for many reasons.** Even if banks have sufficient capital to deal with their NPLs, a high volume of troubled assets on the banks' books causes problems:

- **Uncertainty.** High NPLs cast doubts about the adequacy of bank capital. This uncertainty will translate to a higher risk premium on banks' funding, as well as a reduced willingness of the banks to lend.
- **Business focus of the banks.** Banks being engaged in resolving or restructuring NPLs on a large scale would detract them from a focus on identifying and financing new business opportunities.
- **Misallocation of capital.** If NPLs are a result of investment in non-viable projects, the most efficient way forward would be to recognize the sunk-cost and put any resources from recovery of these loans to more efficient uses. The same applies to collateral: asset price adjustments during crises often create disincentives for banks to execute collateral in the hope of a recovery or to avoid fire sales. However, holding on to such assets risks locking resources that could otherwise be deployed for new credit in an asset that is not likely to recover in value soon.

**12. In the absence of coordinated action after a systemic crisis, NPL resolution tends to proceed more slowly than desirable.** There are externalities associated with NPL resolution which are not accrued to individual banks, such as faster credit growth, removal of debt overhang, and allocation of resources to more productive sectors by deleveraging away from non-viable businesses. Furthermore, there is a coordination failure. From an individual bank's point of view, it may be optimal to delay recognizing a loss, since loss given default is likely at its highest at the bottom of the cycle. However, from a macroeconomic perspective, unless losses are recognized, resources remain locked in less productive sectors/non-viable projects, dampening the recovery. Moreover, each individual bank may be reluctant to recognize their losses unless their competitors do the same. As a result, the non-cooperative or non-coordinated outcome is likely to be suboptimal.

**13. In Greece, several legal and institutional challenges need to be addressed for an effective debt restructuring, some of which are being addressed under the program.**

Notwithstanding the pending adoption of the recent facilitation program, and the forthcoming modifications to the household insolvency scheme, Greece faces many institutional barriers that may impede NPL resolution efforts or lead to higher losses for banks, prolonged debt overhang for the private sector, and overall slower credit growth going forward. We discuss three main policy areas where particular attention is needed, and offer some international perspective.

### **Improving banks' capabilities in dealing with NPLs**

**14. Under the program, the HFSF will conduct a detailed review of individual banks' procedures, using the services of a distressed asset specialist.** The review will cover all aspects of banks' NPL resolution policies and procedures in detail, including the adequacy and effectiveness of workout strategies, collateral and business valuation, and the effectiveness of the staff. This section is not meant to pre-judge the outcomes of this asset review, which will take into consideration individual banks' portfolios as well as legal and institutional factors specific to Greece, but to offer some international experience in this area.

**15. Although outsourcing NPL resolution yields better recoveries in mature markets, many banks in smaller markets chose to deal with their NPLs in-house in the aftermath of the global financial crisis.** Experience from mature markets points to better recovery when NPLs are outsourced. Several factors can explain this: banks might be reluctant to deal with their NPLs and "evergreen" their bad assets. Outside firms may pursue a risk based approach to restructuring, focusing on those loans with the highest probability of return, whereas banks are more reluctant to admit that a loan has gone bad, expending too many resources on loans with little chance of recovery. Alternatively, the banks and the distressed asset specialists might have different incentives and ultimately methods to deal with bad debts. For instance, offering haircuts on principal of the loan might create a moral hazard for those clients that have on-going business with the bank, but is a powerful restructuring tool. Finally, banks may refrain from aggressive debt-enforcement for reputational reasons. Notwithstanding this fact, the Working Group on NPLs in Central, Eastern and Southeastern Europe (CESE) found that countries in this region chose to deal with their NPLs in-house. The group found that a lack of interest from outside investors or the absence of a market for

distressed assets was the main contributor to this decision. The CESE loan portfolios were typically small, and collateral valuation problems meant that prices offered by outside investors were significantly below what the banks thought they could recover themselves. Also, banks often underestimated the value of the time and resources they had to devote to NPL resolution, leading them to quote higher prices for their portfolios.

**16. In Greece, prospects for outsourcing NPL resolution seem limited; thus, the banks should focus on enhancing their in-house NPL resolution capabilities.** At least some of the factors preventing a wider outsourcing of NPL resolutions in CESE are likely to apply to Greece too. The authorities have emphasized the absence of distressed asset buyers as a potential market failure. As we will discuss in the next section, problems with collateral valuation and enforcement are also likely to discourage potential buyers. For these reasons, banks should focus on strengthening their in-house resolution practices, as large-scale alternatives seem unlikely at this stage.

**17. The alternative approach of establishing a state-owned Asset Management Company (AMC) does not seem appropriate for Greece either.** In order to deal with their banks' large stock of NPLs, Ireland and Spain established state-owned AMCs. The advantages are (i) economies of scale in administering workouts, particularly if the loans are similar (as is the case in both Ireland (mortgages) and Spain (Real Estate Development or RED loans)), (ii) benefits from granting special powers to a government agency to expedite loan resolution, and (iii) breaking the bank-client link that could impede an efficient transfer of assets. Yet, a state-owned AMC is less likely to be the right solution for Greece, for several reasons: i) Unlike in Spain and Ireland, the majority of NPLs in Greece are in the SME category, where loans vary significantly in their business type and industry and specific knowledge about each firm or business is crucial; ii) large financing needs for these businesses is not a concern (as is the case for RED loans in Spain or property developers in Ireland); and iii) AMCs could be more expensive upfront, if assets are bought at a price higher than the "market" value implied by collateral and value of the loan; these additional resources were not envisioned in the financial sector envelope.

### **Improving debt enforcement and collateral recovery**

**18. A general standstill in the property market, the main source of collateral in the Greek banking sector, impedes the NPL resolution process.** Several legal and institutional factors exacerbate the absence of activity in the real estate market, potentially contributing to a further fall in prices or at best a prolonged stagnation of this market (see Box 3). This is a problem: for borrowers who cannot "trade-down" their property even if they have positive equity but are no longer able to service their debt; for the banks who cannot evaluate the value of their collateral or execute it; and for the regulator who cannot evaluate whether provisioning levels are sufficient. Indeed, BlackRock conducted drive-by valuations of a representative sample of mortgages during its asset quality review exercise and concluded that properties valued by the banks using the Bank of Greece Index (PropIndex) were overvalued by approximately 13 percent on average across all residential mortgage loans.

**19. In Greece, enforcement of collateral is hampered by many legal obstacles, and improvements in line with international best practices are necessary.** Moratoria on auctions of repossessed assets create moral hazard for those borrowers that are able to pay but are unwilling to do so. These are being addressed by the authorities' program. However, foreclosures still rely on judicial procedures that take too long (BlackRock estimated that it takes, on average, 51 months between the time that a loan becomes non-performing until it is liquidated); executing collateral (once the moratoria are removed) is only possible through auctions and cannot be conducted through a sales agent, imposing significant additional haircuts for the lenders; and there are minimum auction prices based on the objective value of the property that is currently significantly above its market price. All of these practices impose large enforcement costs on the banks, increasing their loss given defaults and ultimately the capital needed to write-off those NPLs secured with property. An overhaul of the debt enforcement possibilities might be necessary to take into account the established best practices in the area, which offer a range of judicial, non-judicial or mixed tools for collection and enforcement methods.

### Box 3. Real Estate Market Reforms

The real estate market in Greece has come to a standstill. According to the BoG, the number of appraisals conducted by banks in 2012 was less than 20 percent of the level observed in 2007; transactions could have fallen even more as some of the appraisals were conducted for loan restructurings or revaluation of residential collateral.

In addition to the drop in activity for cyclical reasons, several problems afflict property markets in Greece which exacerbate the malfunctioning of the real estate market: i) the law puts a minimum price on auctions of foreclosed real estate based on its tax (objective) value; ii) high objective values relative to market values imply that even if a prospective buyer is able to afford a property based on its current market value, he might not be able to afford the associated costs, dampening demand; iii) transaction costs are very high by European standards, at around 20 percent of the property value, and pose an impediment to market transactions, be it executing collateral or sale of a property by a borrower who cannot afford the mortgage payments; iv) the two moratoria on auctions protecting any security on a variety of loans (not only mortgages); and v) high liquidation haircuts, as repossessed property can only be sold in an auction, as opposed to through a real estate agent.

Furthermore, excessive protection for the tenants is prohibitive to rentals, which could potentially allow banks to reduce losses or draw some cash flow from seized collateral before eventual auctioning. For commercial property, the tenant can stay in a property for 16 years by law, even if the contract specifies otherwise. For lawyers and doctors, a 12-year period applies.

## Designing an effective out-of-court restructuring mechanism

**20. Greece is missing an effective out-of-court debt restructuring mechanism for households.** In a systemic crisis like the one afflicting Greece, the capacity of the judicial system to ensure a rapid recovery for distressed borrowers may be limited. Under the current legal framework, there is a provision for household borrowers to negotiate with their creditors before going to court. However, this framework suffers from serious flaws. First, it requires unanimity of creditors, allowing for even small hold-outs to block the process. Second, by making the court procedure extremely debtor friendly (small payments — unrelated to affordability — while debtors wait for a court

hearing combined with a slow judicial process, suspension of executory measures if the debtor files for an appeal, and little guidance to judges on affordability criteria), it offers no incentives for the debtors to come to a mutual agreement with the creditors. Some of these aspects are being addressed under the authorities' program by revisions to the current framework. Under the program, the authorities will introduce an initiative which would, in stages, overhaul the framework for out-of-court restructuring of household debt.

**21. A framework for out-of-court debt restructuring for corporate debt will also become necessary.** Greece recently enacted reforms to its corporate insolvency framework, which seems broadly in-line with international best practices. However, given the burden of SME debt, a speedy and cost effective alternative to the formal insolvency procedures is necessary. A variety of options are available to the authorities. Informal workouts could be strengthened by contractual or statutory provisions or by different mechanisms that combine the advantages of both formal and informal approaches to indebtedness problems ("hybrid procedures"). There are established international best practices in this area (e.g., the INSOL Principles, London Approach, Jakarta Initiative, and Istanbul Approach, among others), which need to be taken into account when designing the framework in Greece.

**22. A successful out-of-court restructuring mechanism requires a set of enabling legislation.** Such laws create an environment that encourages participants to engage in the out-of-court restructuring negotiations rather than resort to judicial routes. Examples include non-punitive tax treatment of write-offs or losses, provisions that give creditors reliable recourse to enforcement, regulatory measures on risk management practices to ensure that banks and financial institutions recognize their losses as soon as possible, and requiring timely and detailed financial disclosure of distressed enterprises (see Box 4 for a set of Principles devised by the World Bank as part of the World Bank Insolvency Initiative standards which forms the basis for its comparative studies of insolvency systems and their efficacy and Box 5 for a set of Principles underlying Latvia's successful out-of-court restructuring mechanism for the corporate sector).

**23. Evidence suggests that recent initiatives taken by many European countries to complement their formal insolvency frameworks have been successful.** These efforts have included issuing guidelines or establishing a legally binding framework given the limited capacity of the judicial system. For instance, in Iceland and Latvia data suggests tangible progress and wide participation (IMF, 2011, Report of the Working Group on NPLs in Central, Eastern and Southeastern Europe, 2012).

**Box 4. World Bank Principles B3 and B5.2 for Out-of-Court Restructuring Mechanisms****Principle B3**

Corporate workouts and restructurings should be supported by an enabling environment, one that encourages participants to engage in consensual arrangements designed to restore an enterprise to financial viability. An environment that enables debt and enterprise restructuring includes laws and procedures that:

**B3.1** Require disclosure of or ensure access to timely, reliable, and accurate financial information on the distressed enterprise;

**B3.2** Encourage lending to, investment in, or recapitalization of viable financially distressed enterprises;

**B3.3** Flexibly accommodate a broad range of restructuring activities, involving asset sales, discounted debt sales, debt write-offs, debt reschedulings, debt and enterprise restructurings, and exchange offerings (debt-to-debt and debt-to-equity exchanges);

**B3.4** Provide favorable or neutral tax treatment with respect to losses or write-offs that are necessary to achieve a debt restructuring based on the real market value of the assets subject to the transaction;

**B3.5** Address regulatory impediments that may affect enterprise reorganizations; and

**B3.6** Give creditors reliable recourse to enforcement, as outlined in Section A, and to liquidation and/or reorganization proceedings, as outlined in Section C.

**Principle B5.2** In addition, good risk-management practices should be encouraged by regulators of financial institutions and supported by norms that facilitate effective internal procedures and practices supporting the prompt and efficient recovery and resolution of nonperforming loans and distressed assets.

### Box 5. Latvia: Out of Court Company Debt Restructuring Principles<sup>1</sup>

**Principle 1:** Debt restructuring is a compromise, not a right - Out of court debt restructuring must be initiated only if the debtor's financial problems can be solved and their business can continue in the long term. A debtor should turn to the creditors in order to discuss available options.

**Principle 2:** Good faith - Negotiations between the debtor and the relevant creditors must take place in good faith in order to create a constructive solution.

**Principle 3:** Unified approach - The interests of all parties should be observed if a unified approach is taken to solving the issues. Creditors may facilitate coordination of the issues by forming a coordination work group. In more complex situations, the parties should consider the option of inviting professionals who can consult with and advise the parties and the relevant creditors.

**Principle 4:** Negotiation with the debtor - The creditors must appoint one person (usually it is the creditor which has the largest claim against the debtor, with experience in negotiating debt restructuring, or it may be a neutral third party), who will conduct negotiations with the debtor, and will ensure that the relevant creditors receive the information provided by the debtor. It must be taken into account that if necessary, in the event that there is a dispute between the interested parties, they may turn to an arbitration procedure.

**Principle 5:** Moratorium period - All relevant creditors must be prepared to cooperate with the debtor as well as with each other in order to provide the debtor with enough time (identifying a deadline) in which to prepare options for solving financial problems (hereinafter – moratorium period). Granting this moratorium period is not the right of the debtor, but is a concession granted by the creditors. The beginning date is called the first date of the moratorium period. It is necessary to identify the length of the moratorium period, providing enough time to prepare the plan as mentioned in Principle 11, or to constitute how much time would be necessary to prepare such a plan.

**Principle 6:** Priority of new resources - If, during the moratorium period, or in accordance with the suggestions put forth as a part of the restructuring process, additional assets are given to the creditor, then the grantor of this loan shall have the option to request security for the loan.

**Principle 7:** Creditors do not take action during the moratorium period - All relevant creditors do not take any actions to submit court claims against the debtor or to reduce their claims against the debtor during the moratorium period.

**Principle 8:** Debtor's pledge to the creditors during the moratorium period - During the moratorium period, the debtor promises not to take any actions which may negatively affect the proposed debt repayment to the relevant creditors (to all, or either of them individually) in relation to the state at the beginning of the moratorium period.

**Principle 9:** The debtor's complete transparency during the moratorium period - During the moratorium period, the debtor shall provide the relevant creditors and advisers with access to all information regarding assets, liabilities, and business transactions and forecasts.

**Principle 10:** Information confidentiality - Information regarding the debtor's assets, liabilities, and business transactions and forecasts, as well as proposals for solving the problems must be available to the relevant creditors and must be confidential, unless it is publicly available information.

### Box 5. Latvia: Out of Court Company Debt Restructuring Principles (concluded)

**Principle 11:** Debt restructuring plan - It is the obligation of the debtor and his advisers to prepare proposals for debt restructuring which are based on a business plan that contains information regarding the necessary steps that need to be taken to solve the debtor's financial problems. The business plan must be based on sound and feasible forecasts, which indicate the debtor's ability to increase cash flow to the point that is necessary to execute the debt restructuring plan (and not delaying the insolvency process).

**Principle 12:** Settlement proposals correspond with the party's rights - When creating proposals for solving the debtor's financial difficulties, the parties must take into account the rights of the creditor and the amount of outstanding obligations at the beginning date of the moratorium period.

<sup>1</sup> [http://www.tm.gov.lv/en/jaunumi/tm\\_info.html?news\\_id=3305](http://www.tm.gov.lv/en/jaunumi/tm_info.html?news_id=3305)

## D. Conclusions

**24. In this paper, we have examined the determinants of “creditless recoveries” — episodes when recovery in output after a recession is not accompanied by a recovery in credit to the private sector — and their relevance for Greece.** Using two estimated panel probit models in the literature, we find that Greece is very likely to experience such an episode.

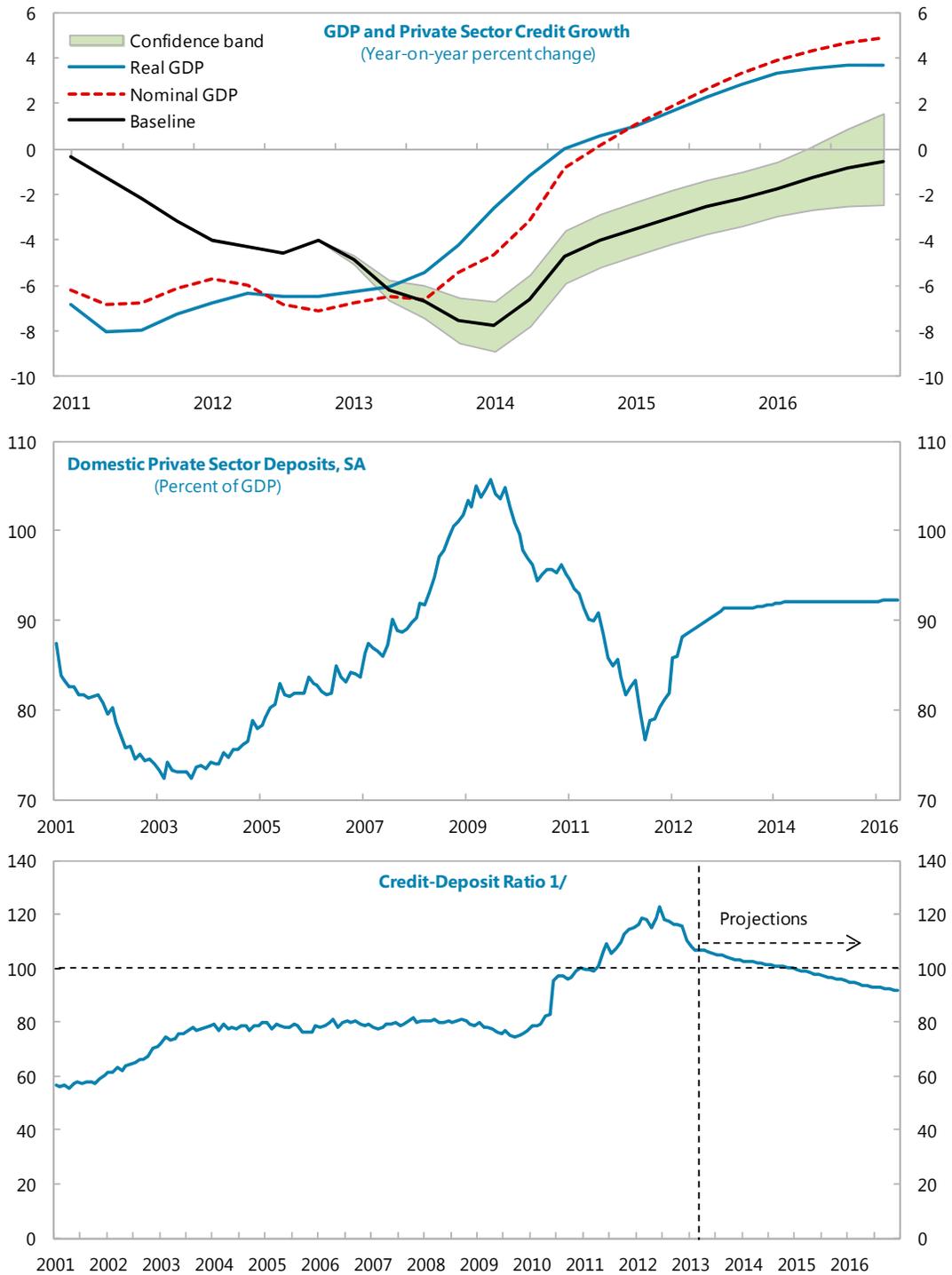
**25. Creditless recoveries are generally associated with disruptions in the supply of credit and financial distress.** Bottlenecks in credit supply contribute to the weaker recovery that ensues. Therefore, policies aimed at easing such constraints should help recovery in credit, and in turn output.

**26. In Greece, the priority for restoring a healthy financial sector is dealing with the banks' balance sheet stresses through recapitalization and a targeted and well designed restructuring program.** A large stock of non-performing assets left unresolved, creates a drag on credit growth and the functioning of banking system, and brings into question the adequacy of bank capital.

**27. We offer some international experience in three specific policy areas that are important elements of an effective debt restructuring framework:**

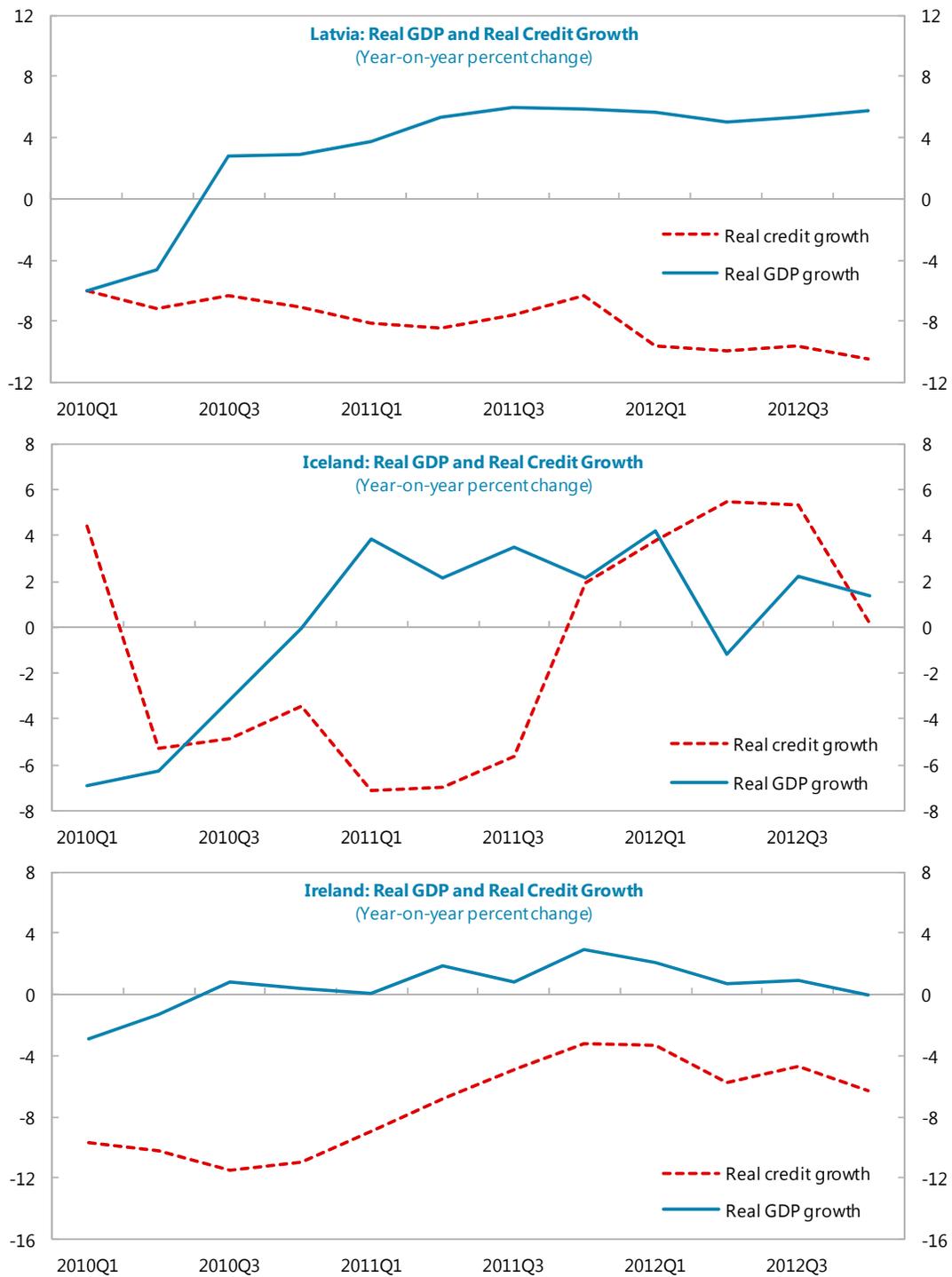
- Ensuring that banks have sufficient resources and expertise to deal with their NPLs in house. The distressed asset review envisaged under the authorities' program is an important step in ensuring this element.
- Improving debt recovery and collateral enforcement, in particular, by addressing the constraints in the real estate market.
- Designing an effective out-of-court restructuring mechanism for the corporate sector and the supporting enabling legislation that would encourage creditors and borrowers to reach settlement outside the court in a speedy and cost-effective manner.

**Figure 1. Greece: Financial Sector Projections, 2001–16**



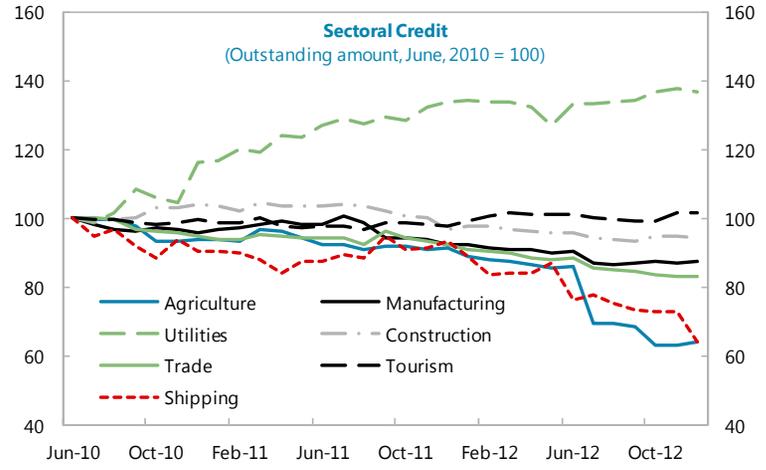
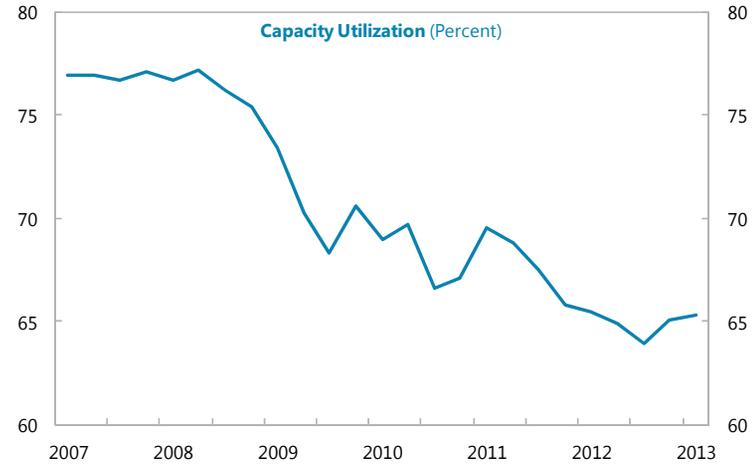
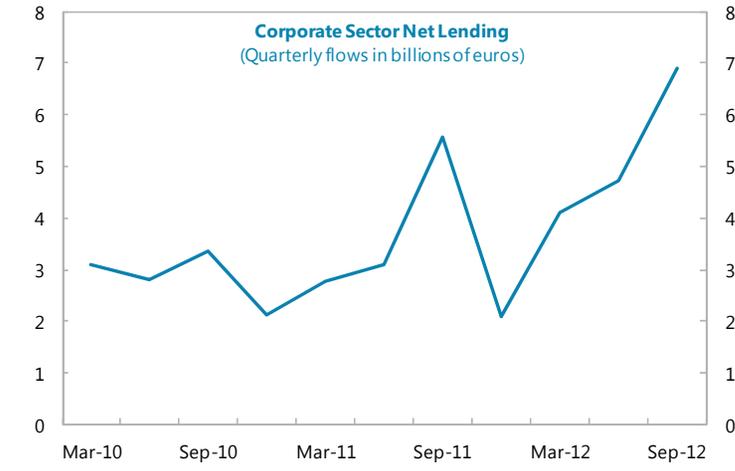
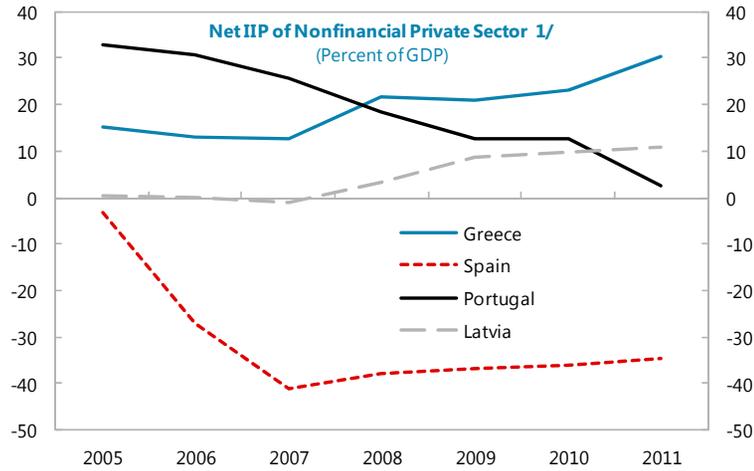
Sources: Bank of Greece; ElStat; and IMF staff calculations and projections.  
 1/ Credit (loans + securities) on non-MFIs as a ratio to deposits and repos of non-MFIs.

**Figure 2. Credit and GDP Evolution in Latvia, Iceland, and Ireland, 2010–12**



Sources: Haver; IMF, World Economic Outlook; and IMF staff estimates.

**Figure 3. Greece: Non-Bank Financing and Sectoral Reallocation, 2005–13**



Sources: Bank of Greece; Elstat; and IMF staff calculations.

1/ Net of following items: direct investment (all sectors), portfolio investment (other sectors only) and other investment (other sectors only).

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