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Fiscal consolidations and spillovers in the Euro area periphery and core

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Abstract

This paper uses a structural multi-country model to assess the impact of fiscal consolidation measures undertaken in 2011-13 in the EA periphery and core. The simulations assume 'crisis' conditions prevailing (high share of constrained households, ZLB). The GDP effects depend crucially on the composition of the consolidation and on how quickly expectations are affected. Expenditure-based consolidations have larger impact multipliers than revenue-based consolidations. Average multipliers for domestic fiscal shocks range from 0.5 and 1, depending on the degree of openness. But spillovers of fiscal consolidations are large, with both the demand channel and the competitiveness channel adding to the negative GDP effects. Higher risk premia add further to the negative GDP effects. Spillovers from consolidations in Germany and core EA have worsened the overall economic situation. A temporary fiscal stimulus in surplus countries can boost output and help reduce their current account surpluses. The improvement in current account deficits in the periphery is however small.

JEL Classification: E21; E62; F42; H31; H63

Keywords: Fiscal Policy, Fiscal Consolidations, Fiscal Multipliers.

* The views expressed in this paper are those of the author and should not be attributed to the European Commission.

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1. Introduction

Sizeable fiscal consolidation measures have been introduced in European countries in recent years, and although the pace of consolidation is expected to slowdown, many countries will continue to see further consolidations in the near future. Highly indebted periphery countries were forced into taking wide ranging austerity measures, having lost access to the financial markets, and facing the risk that a slower pace of consolidation would raise fears of sovereign default, with possibly worse economic consequences.[1] However, the impact of the austerity measures on growth remains a major concern. The process of public deleveraging coincided with private sector deleveraging and has further intensified the crisis. Fiscal multipliers are larger at the current juncture than in normal times, due to stronger financial constraint and interest rates being constrained by the zero lower bound. [2] Output effects are also significantly larger as consolidations occurred simultaneously, which led to significant spillovers across the euro area. This in turn has led to calls for stronger differentiation, and for temporary stimulus measures in countries not facing financial market pressure.

This paper gives a model-based assessment of the macro-economic impact of the consolidations in the periphery and core EA countries over the last three years, 2011-13. It uses the Commission's QUEST model and considers 7 countries separately: Germany, France, Italy, Spain, Ireland, Portugal and Greece, and the remainder of the euro area as one aggregate block. [3] It particularly focuses on the cross-country spillover effects and shows these can be large. The scenarios assume crisis conditions prevailing, with a higher share of households that are liquidity-constrained than in 'normal' times – set to half as opposed to 0.3-0.4 estimated over past periods - and interest rates constrained by their zero interest rate floor for the length of 4 years. The first section shows how the composition of the consolidation matters, with larger impact multipliers for expenditure-based consolidations (illustrated for the case of Spain). Following sections then extend the analysis to other countries and assess the spillover effects of simultaneous consolidations, based on changes in primary structural balances over 2011-13. As detailed information on the exact composition of consolidations is lacking, it is assumed these were across the board proportionally balanced. Different spillover channels are distinguished. Those related to demand and competitiveness effects are reinforcing the negative GDP effects. Contagion of risk spreads can further reinforce the negative spillovers. In the case of successive consolidations, the debt-to-GDP ratio initially increases and only starts to decline in later years, but given the size of the consolidations these later falls are substantial. The increase in the first years leads in the model set-up, which assumes myopia in the financial markets, also to an increase in the sovereign risk premium, albeit small. If contagion of these sovereign risk spreads is assumed, the negative GDP effects are larger. The final section looks at the effects of a temporary stimulus in Germany and other core AAA-rated member states and shows the positive spillovers to the periphery.

[1] Corsetti et al (2012), Roeger and in 't Veld (2013).

[2] E.g. Christiano et al (2011), Coenen et al. (2012), Roeger and in 't Veld (2010) and empirical evidence in e.g. Auerbach and Gorodnichenko (2012), Almunia et al. (2010).

[3] The model structure is described in Roeger and in 't Veld (2010) and is similar to the QUEST model used in Coenen et al. (2012). For references on the QUEST model, see: http://ec.europa.eu/economy_finance/research/macroeconomic_models_en.htm

2. Cross-country spillovers

Cross border spillovers have exacerbated the negative effects of consolidations. This section examines the spillover effects of successive fiscal consolidations. The first subsection takes the case of Spain and illustrates the spillover channels by comparing expenditure-based and revenue-based consolidations. Then the second subsection summarises the GDP spillovers for balanced-composition consolidations for each of the other countries.

In general the following types of spillovers can be considered:

1. **Demand spillovers** that result from policy action in one country (growth-reducing fiscal consolidations) influencing import and export flows with partner economies. As consolidation measures reduce growth and domestic demand, measures undertaken in one country have a negative demand spillover effect on other countries.

2. **Competitiveness effects**, resulting from e.g. deflationary policy shocks putting downward pressure on prices and wages and improving its competiveness, but which represent a negative spillover for competing countries, possibly reinforcing the negative demand spillover.

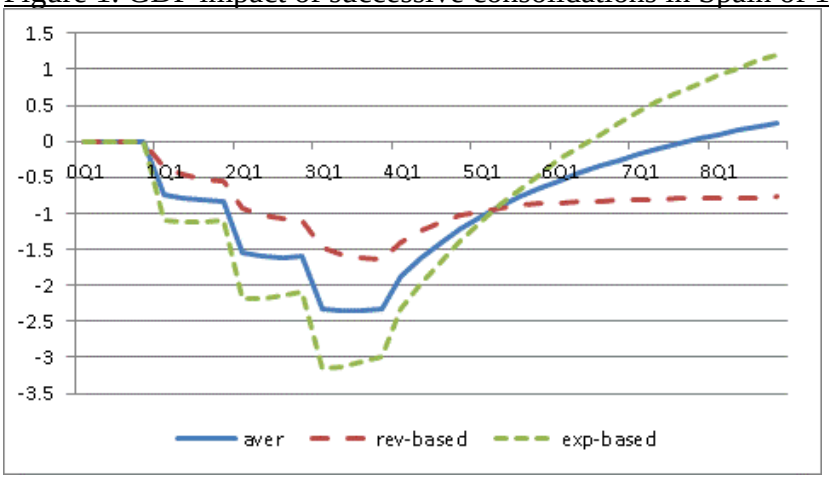
3. **International financial flows** caused by reforms in one country having effects on other countries. For example, reforms which reduce the rate of return on capital can lead to capital outflows until rates of return are equalised internationally. Movements of the exchange rate associated with international capital flows can induce further trade flows.

These spillovers are captured endogenously in model simulations. A potential additional spillover that is not endogenously captured in the simulations is related to possible contagion of **risk premia**. The sovereign debt crisis has shown how other factors, e.g uncertainties related to feedback effects between banks and sovereigns and the contingent liabilities of the public sector, and perceived redenomination risks, can contribute to deviations of sovereign borrowing costs from their long-run equilibrium levels. In the model simulations government bond yields depend on the domestic current debt-to-GDP ratio and the yields follows a similar path to debt profiles. To the extent that consolidation measures initially increase debt-to-GDP ratios risk premia increase in model simulations in the short run, while they decline sharply in the medium run as debt ratios fall. But these depend on each country's *own* debt-to-GDP ratio and, as the parameterisation assumes a relatively small effect, based on available empirical estimates, the increase in risk premia is relatively small. The first scenarios presented here include no additional cross correlations of sovereign risk premia, but section 4 describes a scenario where these effects are added in a simulation over the 2011-13 period.

2.1 Expenditure- vs. revenue-based consolidations in Spain

Expenditure-based consolidations have larger impact multipliers than revenue-based consolidations. [4] Figure 1 illustrates this and shows the GDP impact for three successive consolidation rounds of 1% of GDP per year for expenditure- and revenue-based consolidations, assuming gradual learning. [5] For revenue-based consolidations, the impact multiplier for Spain is around 0.5, for expenditure-based consolidations around 1.1, and for a balanced-composition consolidation around 0.8. While the GDP impact is larger for expenditure-based consolidations, this reverses in the medium-run, and revenue-based consolidations have a more negative impact in the long run.

Figure 1. GDP impact of successive consolidations in Spain of 1% of GDP



Note: percent difference from baseline.

Table 1 shows the macroeconomic effects for Spain and GDP spillovers to other member states. The two main spillover channels are through demand and competitiveness effects. Austerity measures reduce domestic imports. For partner countries this means lower export demand. This demand effect can be reinforced by competiveness effects. Consolidations are deflationary, and improve competiveness in the consolidating country (an increase in real effective exchange rate is a depreciation). Under the assumption of no nominal interest rate response to the fiscal consolidation, the nominal exchange rate also appreciates. Revenue-based consolidations include measures that raise prices and improve competitiveness by less (real effective exchange rate increases by less - see Table 1.c). Hence, revenue-based consolidations lead to a smaller improvement in the current account and spillovers to trading partners are smaller than for expenditure-based consolidations.

Overall, GDP spillovers of a consolidation in Spain onto other trading partners are up to 10 percent of the domestic GDP effect, but about twice as large for Portugal. When the consolidation becomes fully credible and uncertainty is resolved, there is a sharp

[4] In the annex, short and long run GDP effects are shown for individual expenditure and revenue instruments, for one-off permanent consolidations under the assumption of immediate credibility.

[5] These scenarios assume crisis conditions prevailing, with the share of households that are liquidity-constrained set to one-half and interest rates constrained by their zero interest rate floor for the length of 4 years. With multi-year consolidations, assumptions on how expectations are affected matter greatly. In the scenarios shown here it is assumed expectations are initially based on past persistence of fiscal policy shocks and their permanent nature only gains full credibility after three years. If consolidations gain credibility earlier, the negative GDP effects can be considerably smaller. See annex 2 for an illustration for Spain.

recovery in GDP in Spain. This reduces the negative demand spillover to trading partners, and growth is further supported by an exchange rate depreciation, which follows an initial appreciation.

Table 1 GDP spillovers of successive consoldiation of 1% of GDP for three years in Spain

a. Balanced composition

Year	1	2	3	4	5	6	7	8
GDP	-0.79	-1.59	-2.34	-1.53	-0.84	-0.40	-0.07	0.18
EMPLOYMENT	-0.33	-0.66	-0.91	-0.11	0.71	1.27	1.68	1.99
CONSUMPTION	-0.74	-1.55	-2.30	-1.30	-0.42	0.02	0.30	0.51
INVESTMENT	-0.25	-0.56	-0.84	-2.53	-3.19	-2.82	-2.24	-1.68
EXPORTS	0.02	0.10	0.22	1.11	1.72	2.16	2.49	2.74
IMPORTS	-0.72	-1.50	-2.30	-2.17	-2.08	-2.01	-1.94	-1.88
PRICE.LEVEL.GDP	-0.13	-0.44	-0.89	-1.60	-2.29	-2.85	-3.28	-3.63
CONSUMER.PRICE.LEVEL	0.38	0.62	0.72	0.21	-0.33	-0.78	-1.13	-1.40
REER	0.10	0.32	0.63	1.51	2.23	2.80	3.24	3.57
NOM.EXCH.RATE	-0.06	-0.17	-0.36	0.06	0.06	0.04	0.00	-0.03
NOM.INT.RATE (PP)	-0.00	-0.00	-0.00	-0.00	-0.02	-0.04	-0.04	-0.05
SOV.SPREAD (pp)	0.01	0.00	-0.03	-0.11	-0.21	-0.31	-0.42	-0.54
UNEMPL.RATE (pp)	0.20	0.41	0.56	0.07	-0.44	-0.78	-1.04	-1.23
GOV.DEBT (% of GDP)	0.32	0.06	-0.93	-3.75	-6.87	-10.29	-14.01	-18.01
GOV.BAL (% of GDP)	0.72	1.48	2.33	2.92	3.51	3.99	4.40	4.79
CURRENT.ACC (% of GDP)	0.23	0.49	0.75	0.80	0.80	0.78	0.76	0.74
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers:								
DEGDP	-0.04	-0.11	-0.22	0.04	0.11	0.12	0.11	0.11
REAGDP	-0.04	-0.11	-0.21	0.04	0.11	0.12	0.12	0.11
FRGDP	-0.04	-0.12	-0.23	0.00	0.09	0.11	0.11	0.11
ITGDP	-0.04	-0.11	-0.21	0.01	0.09	0.11	0.11	0.11
ESGDP	-0.79	-1.59	-2.34	-1.53	-0.84	-0.40	-0.07	0.18
IEGDP	-0.05	-0.14	-0.26	0.04	0.10	0.11	0.11	0.11
PTGDP	-0.10	-0.24	-0.42	-0.18	-0.06	-0.00	0.03	0.06
ELGDP	-0.04	-0.12	-0.24	0.01	0.10	0.12	0.12	0.12

b. Expenditure based consolidations

Year	1	2	3	4	5	6	7	8
GDP	-1.11	-2.15	-3.08	-1.83	-0.78	0.01	0.61	1.07
EMPLOYMENT	-0.30	-0.50	-0.55	0.80	2.15	3.15	3.92	4.50
CONSUMPTION	-0.53	-1.00	-1.39	-0.11	1.07	1.80	2.33	2.72
INVESTMENT	-0.30	-0.66	-0.95	-3.56	-4.42	-3.59	-2.44	-1.36
EXPORTS	0.04	0.17	0.38	1.91	3.03	3.87	4.48	4.92
IMPORTS	-0.80	-1.64	-2.50	-2.53	-2.60	-2.52	-2.40	-2.28
PRICE.LEVEL.GDP	-0.19	-0.63	-1.31	-2.56	-3.87	-4.90	-5.71	-6.32
CONSUMER.PRICE.LEVEL	-0.16	-0.54	-1.12	-2.02	-3.03	-3.85	-4.49	-4.99
REER	0.14	0.46	0.95	2.50	3.89	4.98	5.80	6.41
NOM.EXCH.RATE	-0.08	-0.26	-0.56	0.11	0.09	0.04	-0.04	-0.14
NOM.INT.RATE (pp)	-0.00	-0.00	-0.00	-0.01	-0.05	-0.08	-0.10	-0.11
SOV.SPREAD (pp)	0.02	0.02	-0.00	-0.10	-0.20	-0.31	-0.45	-0.59
UNEMPL.RATE (pp)	0.19	0.31	0.34	-0.49	-1.33	-1.96	-2.43	-2.79
GOV.DEBT (% of GDP)	0.64	0.67	-0.06	-3.19	-6.53	-10.44	-14.84	-19.66
GOV.BAL (% of GDP)	0.71	1.52	2.46	3.23	4.01	4.67	5.25	5.76
CURRENT.ACC (% of GDP)	0.26	0.54	0.83	1.00	1.07	1.06	1.01	0.97
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers:								
DEGDP	-0.05	-0.16	-0.31	0.11	0.21	0.23	0.22	0.20
REAGDP	-0.05	-0.15	-0.29	0.11	0.22	0.23	0.22	0.21
FRGDP	-0.06	-0.16	-0.32	0.05	0.19	0.22	0.22	0.21
ITGDP	-0.05	-0.14	-0.29	0.06	0.19	0.22	0.22	0.21
ESGDP	-1.11	-2.15	-3.08	-1.83	-0.78	0.01	0.61	1.07
IEGDP	-0.06	-0.18	-0.36	0.12	0.21	0.23	0.22	0.21
PTGDP	-0.12	-0.30	-0.52	-0.15	0.02	0.10	0.16	0.20
ELGDP	-0.06	-0.17	-0.34	0.06	0.20	0.23	0.22	0.21

c. Revenue-based consolidations

Year	1	2	3	4	5	6	7	8
GDP	-0.47	-1.03	-1.57	-1.19	-0.91	-0.83	-0.80	-0.78
EMPLOYMENT	-0.35	-0.81	-1.25	-0.99	-0.72	-0.63	-0.58	-0.55
CONSUMPTION	-0.96	-2.08	-3.19	-2.50	-1.97	-1.83	-1.78	-1.76
INVESTMENT	-0.19	-0.45	-0.71	-1.26	-1.60	-1.67	-1.67	-1.64
EXPORTS	0.01	0.03	0.05	0.26	0.33	0.37	0.39	0.42
IMPORTS	-0.63	-1.35	-2.07	-1.72	-1.48	-1.41	-1.39	-1.38
PRICE.LEVEL.GDP	-0.08	-0.25	-0.46	-0.59	-0.63	-0.66	-0.68	-0.70
CONSUMER.PRICE.LEVEL	0.93	1.78	2.58	2.49	2.46	2.44	2.42	2.41
REER	0.06	0.18	0.32	0.48	0.52	0.55	0.57	0.59
NOM.EXCH.RATE	-0.03	-0.08	-0.15	-0.02	-0.02	-0.01	-0.00	0.01
NOM.INT.RATE (pp)	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
SOV.SPREAD (pp)	-0.00	-0.02	-0.05	-0.13	-0.22	-0.30	-0.39	-0.48
UNEMPL.RATE (pp)	0.22	0.50	0.78	0.61	0.45	0.39	0.36	0.34
GOV.DEBT (% of GDP)	-0.01	-0.57	-1.81	-4.33	-7.18	-10.04	-13.00	-16.07
GOV.BAL (% of GDP)	0.73	1.45	2.20	2.59	2.96	3.22	3.44	3.66
CURRENT.ACC (% of GDP)	0.20	0.43	0.66	0.58	0.50	0.49	0.48	0.49
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers:								
DEGDP	-0.03	-0.07	-0.13	-0.05	-0.02	-0.01	-0.01	-0.00
REAGDP	-0.02	-0.07	-0.13	-0.04	-0.01	-0.00	0.00	0.01
FRGDP	-0.03	-0.08	-0.15	-0.07	-0.03	-0.02	-0.02	-0.01
ITGDP	-0.02	-0.07	-0.13	-0.05	-0.02	-0.02	-0.01	-0.01
ESGDP	-0.47	-1.03	-1.57	-1.19	-0.91	-0.83	-0.80	-0.78
IEGDP	-0.03	-0.09	-0.16	-0.06	-0.03	-0.03	-0.02	-0.01
PTGDP	-0.08	-0.19	-0.31	-0.21	-0.16	-0.13	-0.12	-0.11
ELGDP	-0.03	-0.08	-0.14	-0.06	-0.02	-0.01	-0.01	-0.01

Note: percent(age) difference from baseline.

2.2 Spillovers across member states

Table 2 shows the GDP effects of similar three year successive consolidations for other countries in the model. In all cases fiscal deficits are reduced by 3% of GDP permanently but each country is acting alone (detailed country tables are provided in annex 3). In all cases it is assumed the composition is equally balanced between expenditure and revenue measures.

The multipliers range from around 0.5 (IE) to around 0.9 (EL, IT) and depend mainly on the degree of openness. The average impact multiplier in the first year is around 0.7-0.8. In the second year GDP falls further as additional consolidation measures are introduced. In the first years all domestic demand components are negatively affected by the consolidations, with sharp falls in private consumption and investment (see annex 3). The deflationary impact of the shocks leads to an improvement in competitiveness which helps to boosts exports if one country would be acting alone, and with import demand declining the current account improves, by up to 1% of GDP after 3 years, and 1.6% of GDP in the case of Ireland. However, in the fourth year strong confidence effects lead to a rapid recovery in GDP as agents from then onwards anticipate permanently lower government deficits, government debt and lower future taxes. This, as well as the reduction in interest rates and the fact that the initial appreciation turns into a depreciation, leads to a recovery in output in trading partners and output returns to baseline. [6]

[6] The assumption of uncertainty and learning means positive confidence effects are delayed and short-run GDP effects are larger than when credibility is assumed from the start. In that sense it gives an upper bound of the likely domestic and cross-border impact. On the other hand, the recovery in the fourth year may overstate the likely impact if monetary policy remains constrained for longer.

Table 2 : GDP spillovers 3-year consolidations

Year	1	2	3	4	5	6	7	8
Germany								
DEGDP	**-0.75**	**-1.54**	**-2.31**	**-1.35**	**-0.68**	**-0.29**	**-0.04**	**0.13**
REAGDP	-0.12	-0.31	-0.57	-0.10	0.10	0.17	0.20	0.21
FRGDP	-0.10	-0.27	-0.51	-0.10	0.09	0.15	0.17	0.17
ITGDP	-0.09	-0.25	-0.48	-0.09	0.09	0.15	0.16	0.16
ESGDP	-0.09	-0.26	-0.50	-0.10	0.09	0.16	0.17	0.18
IEGDP	-0.11	-0.31	-0.58	-0.06	0.09	0.14	0.16	0.16
PTGDP	-0.09	-0.27	-0.52	-0.13	0.07	0.13	0.15	0.16
ELGDP	-0.09	-0.27	-0.53	-0.09	0.12	0.17	0.18	0.18
Rest of core EA								
DEGDP	-0.09	-0.22	-0.40	-0.10	0.02	0.06	0.08	0.09
REAGDP	**-0.68**	**-1.39**	**-2.06**	**-1.36**	**-0.82**	**-0.50**	**-0.30**	**-0.16**
FRGDP	-0.07	-0.19	-0.35	-0.09	0.04	0.08	0.09	0.09
ITGDP	-0.06	-0.17	-0.32	-0.07	0.04	0.08	0.09	0.09
ESGDP	-0.06	-0.17	-0.33	-0.08	0.05	0.09	0.10	0.10
IEGDP	-0.11	-0.26	-0.47	-0.13	-0.02	0.03	0.05	0.07
PTGDP	-0.06	-0.17	-0.34	-0.10	0.03	0.08	0.09	0.10
ELGDP	-0.06	-0.18	-0.36	-0.08	0.05	0.09	0.10	0.11
France								
DEGDP	-0.08	-0.23	-0.44	0.02	0.15	0.18	0.18	0.18
REAGDP	-0.08	-0.22	-0.43	0.02	0.16	0.19	0.20	0.20
FRGDP	**-0.82**	**-1.67**	**-2.49**	**-1.54**	**-0.82**	**-0.39**	**-0.10**	**0.11**
ITGDP	-0.07	-0.20	-0.40	-0.02	0.13	0.17	0.17	0.17
ESGDP	-0.07	-0.22	-0.44	-0.04	0.13	0.18	0.20	0.21
IEGDP	-0.09	-0.25	-0.49	0.04	0.15	0.17	0.17	0.17
PTGDP	-0.08	-0.23	-0.45	-0.07	0.11	0.16	0.18	0.19
ELGDP	-0.07	-0.23	-0.46	-0.02	0.15	0.18	0.18	0.18
Italy								
DEGDP	-0.07	-0.21	-0.42	-0.01	0.11	0.14	0.14	0.14
REAGDP	-0.06	-0.20	-0.39	0.00	0.12	0.15	0.16	0.15
FRGDP	-0.06	-0.20	-0.41	-0.05	0.10	0.13	0.14	0.14
ITGDP	**-0.85**	**-1.70**	**-2.49**	**-1.62**	**-0.93**	**-0.50**	**-0.22**	**-0.02**
ESGDP	-0.06	-0.20	-0.41	-0.07	0.09	0.13	0.14	0.15
IEGDP	-0.08	-0.24	-0.46	0.01	0.12	0.14	0.15	0.15
PTGDP	-0.07	-0.21	-0.43	-0.09	0.06	0.11	0.12	0.12
ELGDP	-0.07	-0.23	-0.46	-0.08	0.08	0.12	0.13	0.14
Spain								
DEGDP	-0.04	-0.11	-0.22	0.04	0.11	0.12	0.11	0.11
REAGDP	-0.04	-0.11	-0.21	0.04	0.11	0.12	0.12	0.11
FRGDP	-0.04	-0.12	-0.23	0.00	0.09	0.11	0.11	0.11
ITGDP	-0.04	-0.11	-0.21	0.01	0.09	0.11	0.11	0.11
ESGDP	**-0.79**	**-1.59**	**-2.34**	**-1.53**	**-0.84**	**-0.40**	**-0.07**	**0.18**
IEGDP	-0.05	-0.14	-0.26	0.04	0.10	0.11	0.11	0.11
PTGDP	-0.10	-0.24	-0.42	-0.18	-0.06	-0.00	0.03	0.06
ELGDP	-0.04	-0.12	-0.24	0.01	0.10	0.12	0.12	0.12
Ireland								
DEGDP	-0.01	-0.01	-0.02	-0.01	0.00	0.00	0.01	0.01
REAGDP	-0.01	-0.02	-0.03	-0.01	-0.00	0.01	0.01	0.01
FRGDP	-0.00	-0.01	-0.02	-0.01	0.00	0.01	0.01	0.01
ITGDP	-0.00	-0.01	-0.02	-0.01	0.00	0.00	0.01	0.01
ESGDP	-0.00	-0.01	-0.02	-0.01	0.00	0.01	0.01	0.01
IEGDP	**-0.53**	**-1.01**	**-1.44**	**-1.02**	**-0.61**	**-0.34**	**-0.14**	**-0.01**
PTGDP	-0.00	-0.01	-0.02	-0.01	0.00	0.00	0.01	0.01
ELGDP	-0.00	-0.01	-0.02	-0.00	0.01	0.01	0.01	0.01
Portugal								
DEGDP	-0.01	-0.02	-0.03	0.00	0.01	0.02	0.02	0.02
REAGDP	-0.00	-0.01	-0.03	0.01	0.02	0.02	0.02	0.02
FRGDP	-0.01	-0.02	-0.03	-0.00	0.01	0.02	0.02	0.02
ITGDP	-0.00	-0.01	-0.03	0.00	0.01	0.02	0.02	0.02
ESGDP	-0.01	-0.03	-0.05	-0.01	0.01	0.02	0.03	0.03
IEGDP	-0.01	-0.02	-0.04	0.00	0.01	0.01	0.02	0.02
PTGDP	**-0.75**	**-1.46**	**-2.09**	**-1.52**	**-0.97**	**-0.61**	**-0.35**	**-0.16**
ELGDP	-0.00	-0.02	-0.03	0.00	0.02	0.02	0.02	0.02
Greece								
DEGDP	-0.01	-0.02	-0.05	0.00	0.02	0.02	0.02	0.02
REAGDP	-0.00	-0.02	-0.05	0.00	0.02	0.03	0.03	0.03
FRGDP	-0.01	-0.02	-0.05	-0.00	0.02	0.02	0.02	0.02
ITGDP	-0.01	-0.02	-0.05	-0.01	0.01	0.02	0.02	0.02
ESGDP	-0.01	-0.02	-0.05	-0.00	0.02	0.02	0.02	0.02
IEGDP	-0.01	-0.03	-0.05	0.00	0.02	0.02	0.02	0.02
PTGDP	-0.01	-0.02	-0.05	-0.01	0.01	0.02	0.02	0.02
ELGDP	**-0.86**	**-1.63**	**-2.26**	**-1.68**	**-1.09**	**-0.67**	**-0.36**	**-0.13**

Note: percent(age) difference from baseline. Balanced expenditure-revenue composition, Detailed results in annex 3.

The larger and the more open the 'shock originating' country is, the larger the spillovers to other member states. If one measures spillovers by the ratio between the foreign GDP effect and the domestic GDP effect, this ratio is largest for Germany, increasing from 0.15 in the first year to up to 0.25 after three years. It is slightly smaller for the rest of the EA core block, France, Italy and Spain, and smallest for Portugal, Ireland and Greece. Table 3 summarises the spillovers after three years.

Table 3: GDP spillover ratios for fiscal consolidations

	DE	REA	FR	IT	ES	IE	PT	EL
Germany	1.00	0.19	0.18	0.17	0.09	0.01	0.01	0.02
Rest of EA	0.25	1.00	0.17	0.16	0.09	0.02	0.01	0.02
France	0.22	0.17	1.00	0.16	0.10	0.01	0.01	0.02
Italy	0.21	0.16	0.16	1.00	0.09	0.01	0.01	0.02
Spain	0.22	0.16	0.18	0.16	1.00	0.01	0.02	0.02
Ireland	0.25	0.23	0.20	0.18	0.11	1.00	0.02	0.02
Portugal	0.23	0.17	0.18	0.17	0.18	0.01	1.00	0.02
Greece	0.23	0.17	0.18	0.18	0.10	0.01	0.01	1.00

Note: GDP spillovers by originating country, by column. The spillover ratio is defined as the ratio of foreign GDP over GDP in the shock-originating country, after three years, for balanced composition multi-year consolidations measures (see annex 3 for detailed tables).

3. Simultaneous consolidations 2011-13

The spillovers described above indicate effects can be considerably larger when all countries consolidate simultaneously. This has been the case in recent years. Table 4 below shows consolidation efforts in the past three years (the change in the primary structural balances of general government, as percent of potential GDP) in 2011, 2012 and 2013. [7] By far the largest fiscal consolidations have taken place in Greece, 9% of GDP on the basis of the change in the structural balance over these three years. [8] Portugal has also undertaken large consolidations, close to 7% of GDP, while the adjustment in Ireland amounted to 4% over these years. Consolidation measures in France, Italy and Spain amounted to more than 3.7, 4 and 4.5% of GDP respectively, while Germany also undertook large consolidation measures, despite a larger fiscal space and record low borrowing costs due to a 'flight to safety'. The German structural balance improved by 2.6% of GDP. To a lesser extent, the same holds for the rest of the core EA, with an improvement of 1.5% GDP, also despite overall more favourable fiscal positions and no urgent financial market pressure. [9]

The impact of these fiscal consolidations in the period 2011-13 is now simulated with the model. As detailed information about the composition of the actual consolidations is not available, it is assumed the composition is equally balanced between expenditure and revenue measures. It is also assumed agents lack perfect foresight about future fiscal consolidation plans and there is initial uncertainty about the exact changes in fiscal policy (see annex 2 for a sensitivity analysis).

Table 5 shows the macroeconomic impact of the fiscal consolidations in 2011-13. This simulation captures the negative impact of each country's own measures as well as the

[7] Estimates for 2013 are from the Commission's Spring forecast, which is based on a no-policy change assumption, only including agreed and approved budgetary measures.
[8] And this was preceded by a 6% improvement in the structural balance in 2010, compared to 2009.
[9] The Netherlands, Finland, Austria and Belgium make up 90% of this Rest of EA block in the model.

negative spillover effects of other countries' consolidation measures. Figure 2 compares the GDP effects under the simultaneous scenario with those when one country would have acted alone, and the difference shows the size of the spillovers. The maximum fall in GDP is between 1.6 and 2.6% larger when intra-EA spillovers are taken into account.

Table 4: Changes in primary structural balance general government (% of potential GDP)

	Consolidation efforts			Cumulative		
	2011	*2012*	*2013**	2011	2012	2013*
Germany	*1.42*	*1.16*	*0.03*	1.42	2.58	2.61
France	*1.37*	*1.02*	*1.30*	1.37	2.38	3.68
Italy	*0.47*	*2.75*	*0.73*	0.47	3.22	3.95
Spain	*0.68*	*2.32*	*1.45*	0.68	3.00	4.45
Ireland	*1.63*	*0.64*	*1.77*	1.63	2.27	4.04
Portugal	*3.50*	*2.72*	*0.51*	3.50	6.22	6.73
Greece	*4.82*	*2.24*	*1.85*	4.82	7.06	8.91
Rest of EA	*0.46*	*0.62*	*0.46*	0.46	1.08	1.54

Source: Commission forecast Spring 2013

The fall in GDP is largest in Greece and Portugal, the two programme countries having made the largest efforts. Multipliers range from around 0.5 (IE) to around 0.9 (IT) and depend mainly on the degree of openness. In the first years all domestic demand components are negatively affected by the consolidations, with sharp falls in private consumption and investment. In following years GDP falls further as additional consolidation measures are introduced. The total consolidation effort only gains full credibility after three years, i.e. 2014, by when expectations of lower debt and lower future taxes generate positive confidence effects that lead to a recovery. The fact that nominal interest rates are assumed to remain unchanged up to the fourth year, but from then on are reduced in response to lower inflation and output, also boosts growth.[10]

The deflationary impact of the shocks leads to an improvement in competitiveness, but while this could help to boosts exports if one country was acting alone, under EA-wide consolidations these benefits are partly lost. With imports falling due to the demand contraction, the current account improves, by up to 1.6% of GDP for Portugal, and 2.3% of GDP for Greece. Note that the consolidation in Germany also improves the German current account, by up to 0.6% of GDP.

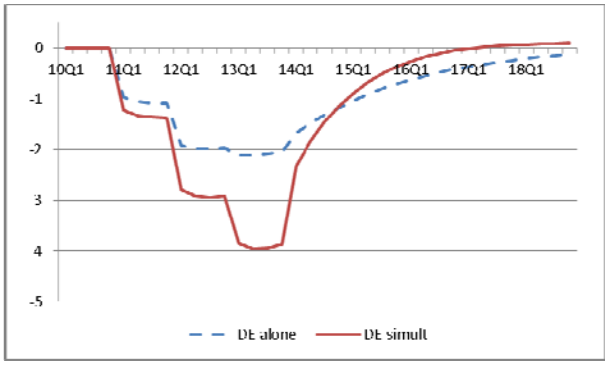
The slowdown in growth reduces tax revenues and raises unemployment-related expenditures. As a result the ex-post reductions in government deficits are significantly smaller than the ex-ante fiscal efforts. The debt-to-GDP ratios actually increase following the consolidations in the short run (and are in that narrow sense "self-defeating") and it can take up to five years before any improvement in debt-to-GDP ratios is seen (Figure 3). However, the deterioration in debt ratios is temporary and followed in the medium term by large reductions in debt-to-GDP ratios. The larger the initial debt ratio, the stronger the short term deterioration in the debt ratios following consolidations (EL). But even in the case of Greece, the medium run improvement in the debt-to-GDP ratio is large, up to 40 pps. by 2018.[11]

[10] At the current juncture a reduction in interest rates may seem unlikely to happen, and the fast recovery in GDP may take longer to materialise than shown in these simulations.

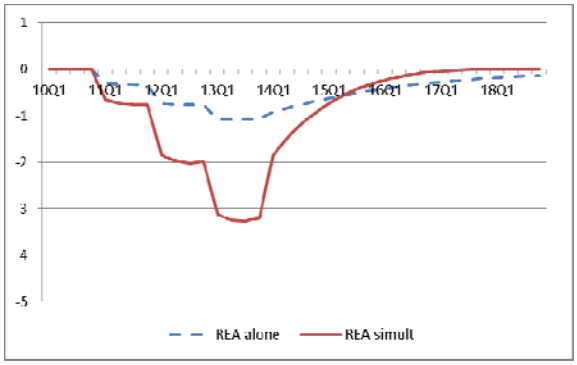
[11] Note this shows debt ratios relative to the baseline, which comes on top of increases in debt ratios that are implicit in the baseline.

Figure 2 GDP spillovers: EA-wide consolidations vs single country acting alone
(% diff. baseline)

DE



REA



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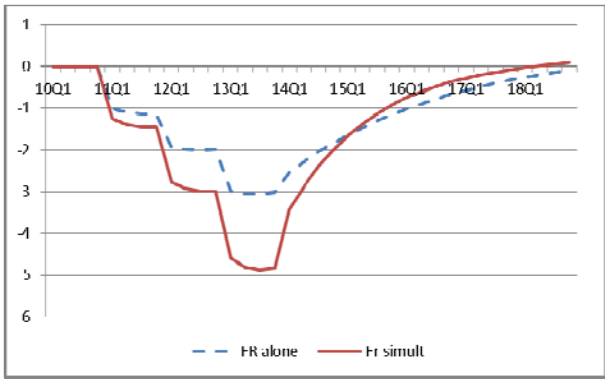
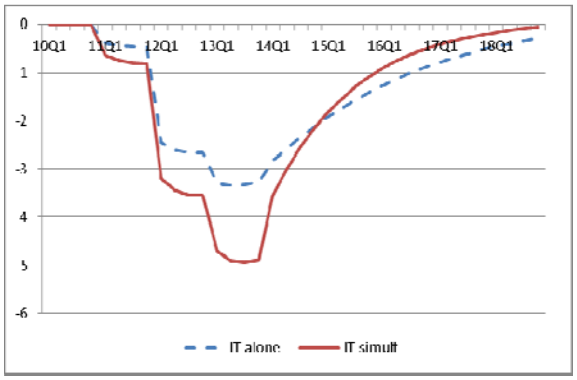
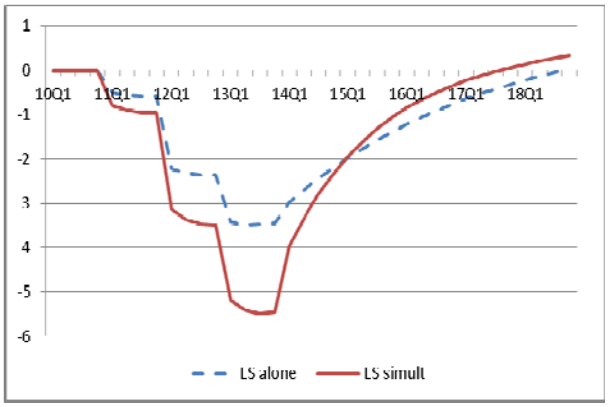


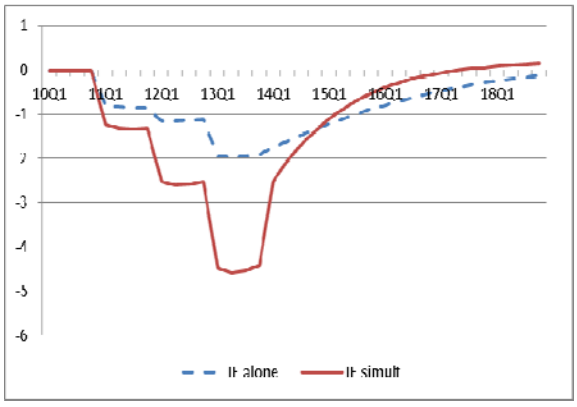
IT



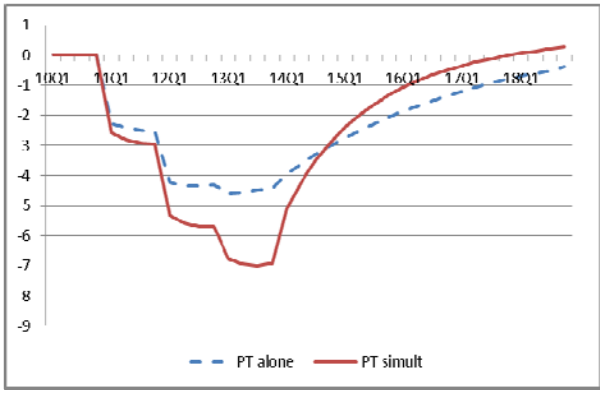
ES



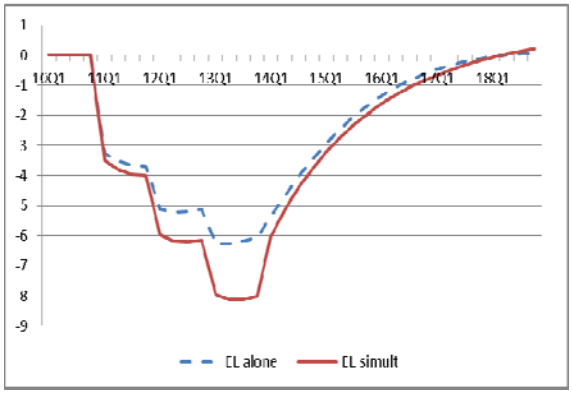
IE



PT



EL



Note: GDP effects of actual 2011-13 EA-wide simultaneous consolidation, based on changes in structural primary balances (as in table 4), and assuming balanced-composition and gradual learning. Dashed line shows simulated GDP if country was acting alone.

Table 5 Macroeconomic impact simultaneous consolidations in 2011-13

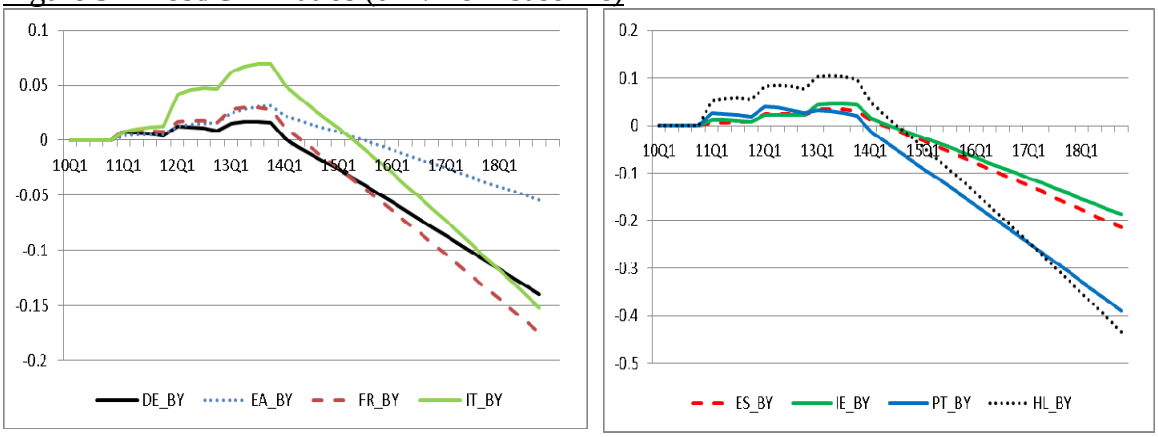
Year	11	12	13	14	15	16	17	18
Germany								
GDP	-1.33	-2.90	-3.90	-1.69	-0.61	-0.14	0.03	0.08
EMPLOYMENT	-0.69	-1.73	-2.61	-0.60	0.66	1.13	1.28	1.30
CONSUMPTION	-1.13	-2.48	-3.33	-1.87	-0.52	0.03	0.24	0.31
INVESTMENT	-0.66	-2.05	-3.77	-2.46	-0.61	0.43	0.89	1.06
EXPORTS	-0.67	-1.93	-3.40	-0.12	0.80	1.24	1.38	1.40
IMPORTS	-1.12	-2.41	-3.20	-2.31	-1.31	-0.79	-0.55	-0.43
PRICE.LEVEL.GDP	-0.27	-1.01	-2.21	-3.73	-4.48	-5.16	-5.79	-6.37
CONSUMER.PRICE.LEVEL	0.37	0.03	-1.41	-2.03	-2.79	-3.53	-4.24	-4.90
REER	-0.19	-0.66	-1.39	1.10	1.33	1.39	1.35	1.27
NOM.EXCH.RATE	-0.55	-1.93	-3.98	-1.22	-1.36	-1.79	-2.38	-3.00
NOM.INT.RATE.PP	-0.00	-0.01	-0.03	-0.07	-0.44	-0.68	-0.74	-0.72
SOV.SPREAD.PP	0.02	0.03	0.05	-0.03	-0.11	-0.20	-0.29	-0.39
UNEMPL.RATE.PP	0.46	1.13	1.71	0.39	-0.43	-0.74	-0.84	-0.85
GOV.DEBT.PERC.OF.GDP	0.60	1.10	1.61	-0.91	-3.75	-6.74	-9.79	-12.84
GOV.BAL.PERC.OF.GDP	0.96	1.55	1.16	2.10	2.97	3.52	3.76	3.88
CURRENT.ACC.PERC.OF.GDP	0.32	0.59	0.60	0.74	0.57	0.49	0.46	0.44
Rest of EA								
GDP	-0.73	-1.96	-3.22	-1.36	-0.51	-0.15	-0.02	0.01
EMPLOYMENT	-0.47	-1.38	-2.39	-0.73	0.26	0.61	0.70	0.69
CONSUMPTION	-0.48	-1.37	-2.34	-1.50	-0.51	-0.08	0.09	0.13
INVESTMENT	-0.48	-1.67	-3.30	-2.19	-0.51	0.45	0.88	1.02
EXPORTS	-0.86	-2.31	-3.81	-0.66	0.23	0.65	0.79	0.81
IMPORTS	-0.65	-1.70	-2.75	-1.56	-0.69	-0.21	0.01	0.10
PRICE.LEVEL.GDP	-0.16	-0.71	-1.77	-3.28	-3.93	-4.56	-5.16	-5.73
CONSUMER.PRICE.LEVEL	-0.03	-0.50	-1.62	-2.22	-2.93	-3.63	-4.31	-4.96
REER	-0.28	-0.91	-1.71	0.34	0.39	0.35	0.27	0.18
NOM.EXCH.RATE	-0.55	-1.93	-3.98	-1.22	-1.36	-1.79	-2.38	-3.00
NOM.INT.RATE.PP	-0.00	-0.01	-0.03	-0.07	-0.44	-0.68	-0.74	-0.72
SOV.SPREAD.PP	0.01	0.04	0.09	0.05	0.00	-0.04	-0.09	-0.14
UNEMPL.RATE.PP	0.32	0.93	1.60	0.49	-0.17	-0.41	-0.47	-0.46
GOV.DEBT.PERC.OF.GDP	0.47	1.45	2.87	1.66	0.17	-1.48	-3.16	-4.82
GOV.BAL.PERC.OF.GDP	0.20	0.33	0.23	0.90	1.56	1.99	2.14	2.18
CURRENT.ACC.PERC.OF.GDP	0.01	0.09	0.21	0.40	0.35	0.33	0.32	0.33
France								
GDP	-1.39	-2.93	-4.78	-2.68	-1.28	-0.55	-0.18	0.03
EMPLOYMENT	-0.74	-1.76	-2.94	-1.07	0.47	1.22	1.58	1.75
CONSUMPTION	-1.14	-2.45	-4.14	-2.41	-0.70	0.10	0.48	0.68
INVESTMENT	-0.75	-2.27	-4.37	-3.48	-1.47	-0.00	0.83	1.28
EXPORTS	-0.78	-2.24	-3.65	-0.23	1.02	1.68	1.97	2.08
IMPORTS	-1.21	-2.55	-4.13	-3.38	-2.23	-1.59	-1.24	-1.04
PRICE.LEVEL.GDP	-0.29	-1.05	-2.41	-4.03	-5.09	-5.99	-6.76	-7.44
CONSUMER.PRICE.LEVEL	0.35	-0.02	-0.87	-1.97	-3.01	-3.94	-4.78	-5.52
REER	-0.14	-0.54	-1.04	1.25	1.77	2.06	2.18	2.22
NOM.EXCH.RATE	-0.55	-1.93	-3.98	-1.22	-1.36	-1.79	-2.38	-3.00
NOM.INT.RATE.PP	-0.00	-0.01	-0.03	-0.07	-0.44	-0.68	-0.74	-0.72
SOV.SPREAD.PP	0.03	0.05	0.09	-0.01	-0.12	-0.24	-0.36	-0.48
UNEMPL.RATE.PP	0.48	1.16	1.93	0.70	-0.31	-0.80	-1.04	-1.15
GOV.DEBT.PERC.OF.GDP	0.85	1.71	2.90	-0.22	-3.93	-7.86	-11.89	-15.94
GOV.BAL.PERC.OF.GDP	0.87	1.29	1.88	2.82	3.84	4.52	4.83	4.99
CURRENT.ACC.PERC.OF.GDP	0.20	0.30	0.55	0.76	0.64	0.56	0.51	0.47
Italy								
GDP	-0.74	-3.43	-4.86	-2.81	-1.41	-0.68	-0.31	-0.10
EMPLOYMENT	-0.50	-2.02	-3.11	-1.15	0.46	1.25	1.64	1.81
CONSUMPTION	-0.62	-2.93	-4.37	-2.70	-1.03	-0.23	0.16	0.36
INVESTMENT	-0.63	-2.30	-4.29	-3.77	-2.09	-0.70	0.16	0.66
EXPORTS	-0.81	-2.00	-3.25	0.32	1.57	2.23	2.50	2.59
IMPORTS	-0.71	-3.01	-4.37	-3.58	-2.55	-1.90	-1.54	-1.31
PRICE.LEVEL.GDP	-0.23	-1.24	-2.85	-4.63	-5.75	-6.67	-7.44	-8.10
CONSUMER.PRICE.LEVEL	-0.05	0.21	-1.16	-2.38	-3.48	-4.45	-5.29	-6.02
REER	-0.22	-0.42	-0.70	1.96	2.58	2.90	3.03	3.05
NOM.EXCH.RATE	-0.55	-1.93	-3.98	-1.22	-1.36	-1.79	-2.38	-3.00
NOM.INT.RATE.PP	-0.00	-0.01	-0.03	-0.07	-0.44	-0.68	-0.74	-0.72
SOV.SPREAD.PP	0.03	0.14	0.20	0.11	-0.01	-0.14	-0.27	-0.40
UNEMPL.RATE.PP	0.33	1.33	2.04	0.75	-0.30	-0.82	-1.07	-1.19
GOV.DEBT.PERC.OF.GDP	1.07	4.52	6.70	3.50	-0.39	-4.58	-8.98	-13.49
GOV.BAL.PERC.OF.GDP	0.11	1.69	1.67	2.70	3.95	4.87	5.33	5.59
CURRENT.ACC.PERC.OF.GDP	0.04	0.54	0.76	0.93	0.83	0.74	0.67	0.62

Year	11	12	13	14	15	16	17	18
Spain								
GDP	-0.90	-3.36	-5.39	-3.11	-1.48	-0.59	-0.08	0.24
EMPLOYMENT	-0.52	-1.84	-3.06	-1.07	0.64	1.54	2.03	2.31
CONSUMPTION	-0.71	-2.82	-4.76	-2.73	-0.73	0.24	0.75	1.05
INVESTMENT	-0.56	-2.18	-4.26	-4.02	-2.29	-0.69	0.38	1.05
EXPORTS	-0.89	-2.28	-3.65	-0.03	1.43	2.25	2.66	2.86
IMPORTS	-0.79	-2.86	-4.65	-3.62	-2.41	-1.71	-1.30	-1.05
PRICE.LEVEL.GDP	-0.20	-0.97	-2.37	-4.17	-5.45	-6.53	-7.44	-8.21
CONSUMER.PRICE.LEVEL	0.10	0.39	-0.41	-1.73	-2.99	-4.09	-5.05	-5.88
REER	-0.24	-0.62	-1.05	1.12	1.80	2.23	2.49	2.63
NOM.EXCH.RATE	-0.55	-1.93	-3.98	-1.22	-1.36	-1.79	-2.38	-3.00
NOM.INT.RATE.PP	-0.00	-0.01	-0.03	-0.07	-0.44	-0.68	-0.74	-0.72
SOV.SPREAD.PP	0.02	0.07	0.10	-0.01	-0.15	-0.29	-0.44	-0.59
UNEMPL.RATE.PP	0.32	1.14	1.90	0.66	-0.40	-0.96	-1.26	-1.43
GOV.DEBT.PERC.OF.GDP	0.71	2.34	3.29	-0.49	-4.92	-9.64	-14.55	-19.53
GOV.BAL.PERC.OF.GDP	0.32	1.71	2.37	3.47	4.64	5.41	5.81	6.04
CURRENT.ACC.PERC.OF.GDP	0.03	0.40	0.72	0.96	0.85	0.77	0.70	0.64
Ireland								
GDP	-1.30	-2.56	-4.51	-1.90	-0.79	-0.25	0.00	0.12
EMPLOYMENT	-0.53	-1.34	-2.38	-0.17	1.14	1.70	1.93	2.02
CONSUMPTION	-1.33	-2.36	-4.21	-3.36	-2.16	-1.60	-1.31	-1.14
INVESTMENT	-0.46	-1.39	-2.75	-2.40	-1.37	-0.61	-0.18	0.04
EXPORTS	-0.64	-1.87	-3.22	0.14	1.11	1.62	1.81	1.85
IMPORTS	-1.15	-2.17	-3.76	-2.73	-1.94	-1.47	-1.22	-1.07
PRICE.LEVEL.GDP	-0.20	-0.79	-1.95	-3.89	-4.76	-5.55	-6.25	-6.88
CONSUMER.PRICE.LEVEL	0.51	-0.07	-0.74	-0.97	-1.78	-2.59	-3.38	-4.12
REER	-0.25	-0.88	-1.64	1.26	1.63	1.82	1.87	1.85
NOM.EXCH.RATE	-0.55	-1.93	-3.98	-1.22	-1.36	-1.79	-2.38	-3.00
NOM.INT.RATE.PP	-0.00	-0.01	-0.03	-0.07	-0.44	-0.68	-0.74	-0.72
SOV.SPREAD.PP	0.03	0.07	0.13	0.00	-0.12	-0.25	-0.38	-0.51
UNEMPL.RATE.PP	0.35	0.88	1.56	0.11	-0.75	-1.11	-1.27	-1.33
GOV.DEBT.PERC.OF.GDP	1.07	2.23	4.45	0.02	-4.08	-8.33	-12.66	-17.00
GOV.BAL.PERC.OF.GDP	1.12	1.22	2.15	3.24	4.27	5.01	5.34	5.50
CURRENT.ACC.PERC.OF.GDP	0.65	0.94	1.78	1.92	1.79	1.69	1.61	1.54
Portugal								
GDP	-2.82	-5.58	-6.91	-3.93	-1.82	-0.76	-0.18	0.17
EMPLOYMENT	-1.14	-2.46	-3.25	-0.71	1.41	2.44	2.96	3.22
CONSUMPTION	-2.65	-5.41	-6.94	-3.51	-0.64	0.58	1.17	1.50
INVESTMENT	-0.91	-2.46	-4.08	-3.51	-1.68	-0.05	1.04	1.73
EXPORTS	-0.67	-2.07	-3.46	-0.07	1.49	2.38	2.82	3.01
IMPORTS	-2.56	-5.25	-6.78	-4.77	-3.06	-2.16	-1.64	-1.30
PRICE.LEVEL.GDP	-0.47	-1.63	-3.27	-5.20	-6.49	-7.54	-8.39	-9.08
CONSUMER.PRICE.LEVEL	1.34	1.60	0.18	-1.24	-2.55	-3.67	-4.63	-5.46
REER	0.10	0.19	0.12	2.16	2.78	3.14	3.30	3.34
NOM.EXCH.RATE	-0.55	-1.93	-3.98	-1.22	-1.36	-1.79	-2.38	-3.00
NOM.INT.RATE.PP	-0.00	-0.01	-0.03	-0.07	-0.44	-0.68	-0.74	-0.72
SOV.SPREAD.PP	0.07	0.10	0.08	-0.12	-0.36	-0.59	-0.83	-1.07
UNEMPL.RATE.PP	0.75	1.62	2.14	0.46	-0.93	-1.60	-1.95	-2.12
GOV.DEBT.PERC.OF.GDP	2.23	3.36	2.76	-4.15	-11.87	-19.69	-27.71	-35.83
GOV.BAL.PERC.OF.GDP	2.43	4.16	4.22	5.95	7.66	8.77	9.37	9.74
CURRENT.ACC.PERC.OF.GDP	0.81	1.45	1.64	1.48	1.14	0.98	0.86	0.78
Greece								
GDP	-3.82	-6.13	-8.05	-4.84	-2.54	-1.22	-0.42	0.08
EMPLOYMENT	-1.78	-3.14	-4.13	-1.01	1.66	3.15	4.00	4.47
CONSUMPTION	-3.46	-5.82	-7.76	-4.75	-1.94	-0.53	0.27	0.75
INVESTMENT	-1.42	-3.19	-4.94	-5.35	-3.77	-1.70	-0.07	1.08
EXPORTS	-0.32	-1.05	-1.82	2.49	4.35	5.41	5.93	6.13
IMPORTS	-3.51	-5.81	-7.81	-6.75	-5.50	-4.65	-4.06	-3.62
PRICE.LEVEL.GDP	-0.88	-2.50	-4.67	-7.17	-8.91	-10.24	-11.23	-11.97
CONSUMER.PRICE.LEVEL	1.54	1.01	-0.33	-2.11	-3.80	-5.17	-6.27	-7.16
REER	0.41	0.80	1.06	4.88	6.33	7.22	7.67	7.83
NOM.EXCH.RATE	-0.55	-1.93	-3.98	-1.22	-1.36	-1.79	-2.38	-3.00
NOM.INT.RATE.PP	-0.00	-0.01	-0.03	-0.07	-0.44	-0.68	-0.74	-0.72
SOV.SPREAD.PP	0.17	0.25	0.31	0.04	-0.24	-0.54	-0.85	-1.18
UNEMPL.RATE.PP	1.17	2.06	2.71	0.66	-1.09	-2.07	-2.62	-2.93
GOV.DEBT.PERC.OF.GDP	5.50	8.21	10.23	1.35	-8.12	-18.05	-28.47	-39.20
GOV.BAL.PERC.OF.GDP	3.08	4.26	5.32	7.34	9.47	11.05	11.99	12.61
CURRENT.ACC.PERC.OF.GDP	1.07	1.70	2.27	2.34	2.09	1.87	1.69	1.54

Note: percent(age) difference from baseline. Fiscal effort as described in Table 4.

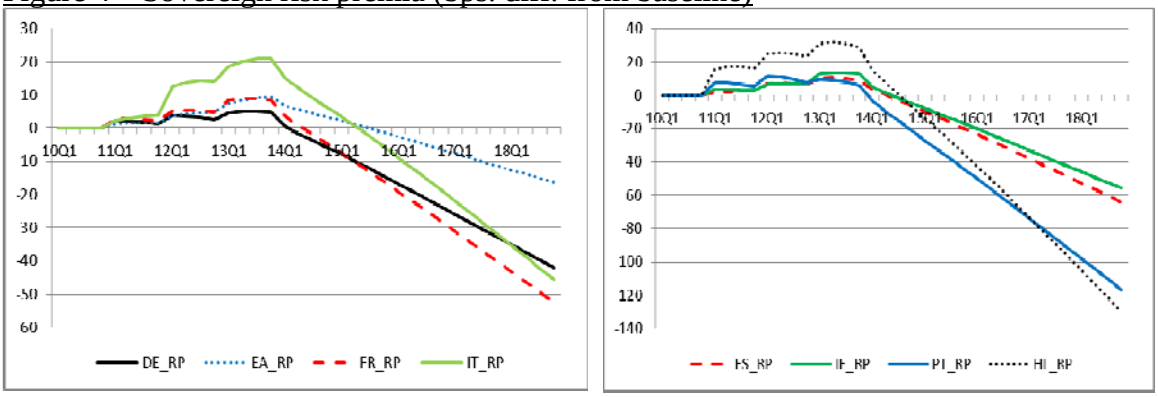
In the model government bond yields depend on *current* debt ratios, assuming myopia on the side of financial markets. Temporarily higher government debt-to-GDP ratios lead to temporarily higher government bond yields, but with the standard parameterisation the impact is relatively small, up to 31 bps for Greece (Figure 4). [12] In the long run, government bond yields decline sharply. However, the relationship between debt and government bond yields is more complex and there have been large deviations of sovereign borrowing costs from their long-run equilibrium levels. The folowing section addresses this issue further.

Figure 3 Debt/GDP ratios (diff. from baseline)



Note: Debt-to-GDP ratios in the baseline without consolidation are also increasing, and these graphs show the *additional* increases/decreases.

Figure 4 Sovereign risk premia (bps. diff. from baseline)



Note: Sovereign risk premia in the baseline without consolidation are also increasing, and these graphs show the *additional* increases/decreases.

[12] In the model government bond yields increase by 3 basis points in response to a 1 percentage point increase in the government debt-to-GDP ratio. This is somewhat higher than found in empirical analysis. Laubach (2009) reports effects between 1-3 bps, In 't Veld et al. (2012) find an effect of 1.2 bp for Spain over the period 1995-2011, Poghosyan (2012) finds an effect of 2 bp for a panel of 22 advanced economies during 1980-2010. However, other factors, e.g uncertainties related to feedback effects between banks and sovereigns and the contingent liabilities of the public sector, and perceived redenomination risks, have in recent years contributed to higher temporary deviations of sovereign borrowing costs from their long-run equilibrium levels. The relationship between debt and CDS spreads is found to be highly non-linear and convex (e.g Arellano, 2008, Bi, 2012). See also European Commission (2012).

4. Contagion and higher risk premia

While the model parameterisation leads to only small increases in sovereign spreads, much larger increases have been observed in recent years. Figure 5 shows sovereign risk premia for selected countries, which far exceeded simulated increases in sovereign risk premia shown in the previous section. Changes in government bond yields affect long term sustainability of government debt, but, given the average maturity structure of sovereign debt, have only a delayed real economic effect, and then only when permanent. But in the sovereign debt crisis a more important channel has been the pass-through of sovereign risk spreads into private sector borrowing costs. For example, Zoli (2013) estimates about 50-60 percent of an increase in sovereign spreads for Italy was transmitted to firm lending rates within six months. Figure 5.2 shows an increasing dispersion of lending rates banks charge to non-financial corporations across the euro area. [13] MFI interest rates on loans to NFCs started to diverge in 2010, first for Greece and then for Portugal, and in 2011 and 2012 rates in Spain and Italy were also affected. Lending rates are up to 200 bps higher in Spain and Italy, and up to 350 bps higher in Greece and Portugal.

Figure 5.1: Sovereign bond spreads- selected MS (10y yield spreads to the German Bund)

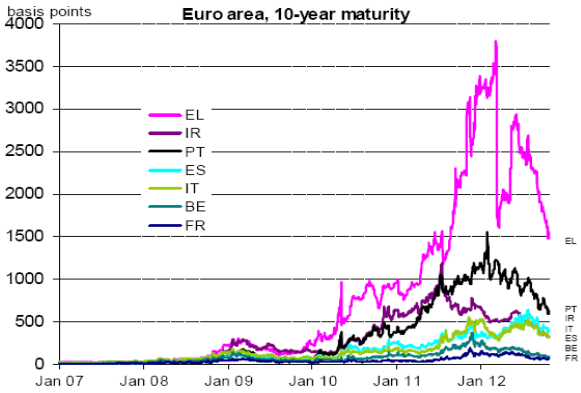
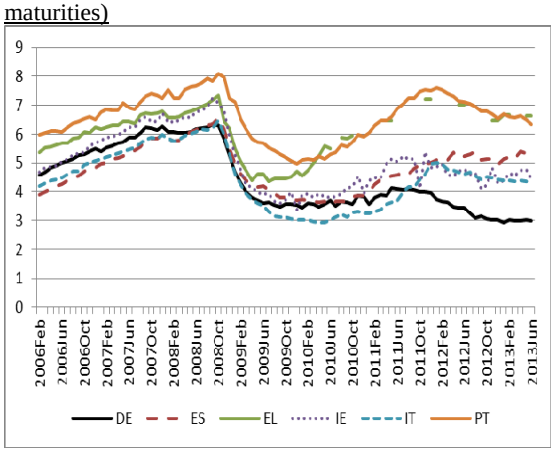


Figure 5.2 MFI interest rates on loans to NFC (all maturities)

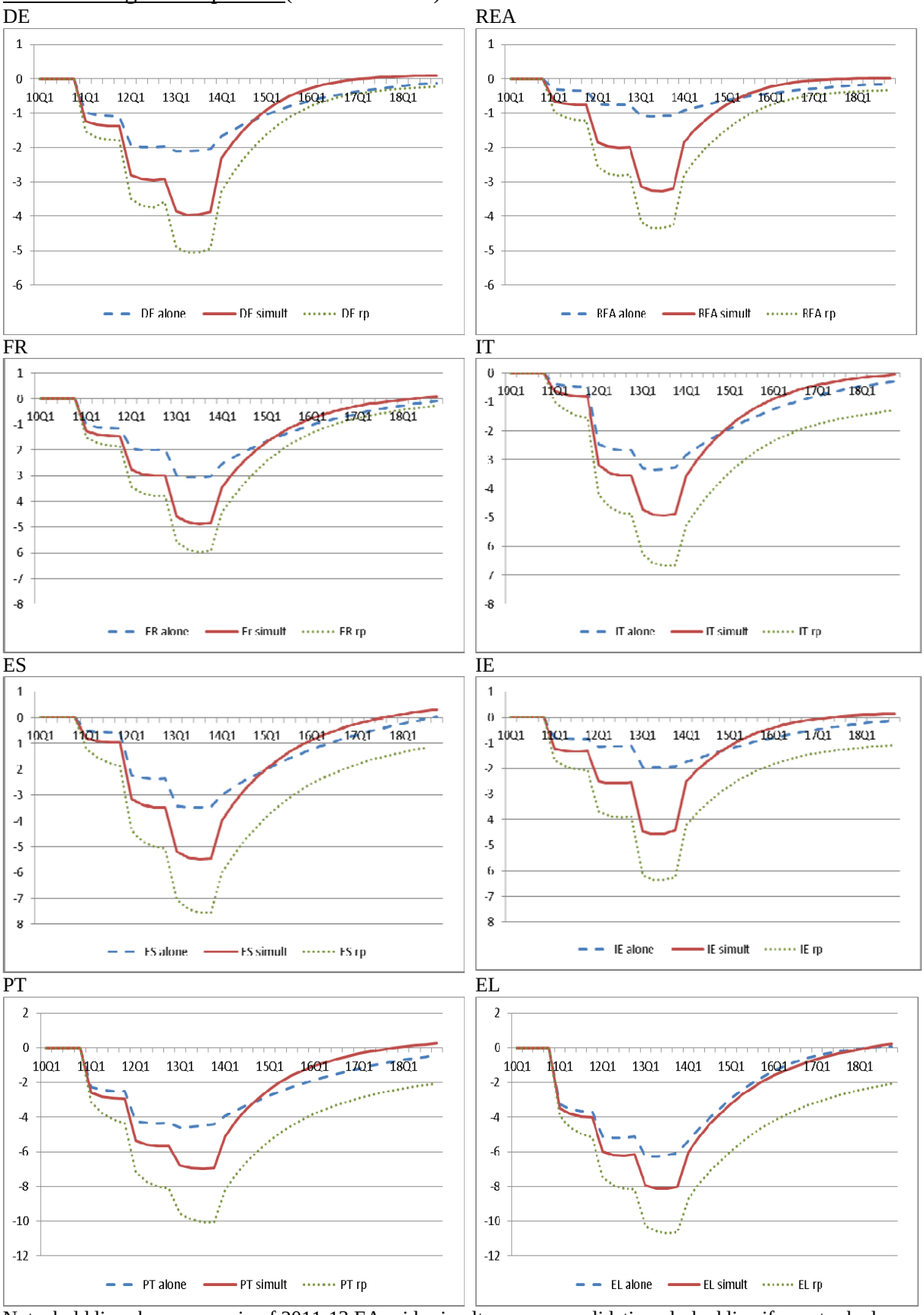


To illustrate the potential effects this can have, the simulation presented in Figure 6 shows GDP if an additional increase in sovereign and corporate risk premia is added. Sovereign risk premia are raised by 300 bps in Italy, Spain and Ireland, and by 600 bps in Greece and Portugal. The pass-through to private sector borrowing costs is assumed to be one-half, i.e. borrowing costs for the private sector increase by 200 bps and 400 bps respectively.

Adding higher risk premia to the consolidation simulations increases the GDP losses. It adds between 2 and 3% to the negative GDP effects for the countries most affected. The total output losses over these three years increase to 10% for Portugal and almost 11% for Greece. The negative spillovers also lower GDP in the countries not directly affected (Germany, France and rest of core EA).

[13] Corsetti et al. (2012) highlights the sovereign risk channel for this transmission channel to the private sector. Roeger and in 't Veld (2013) illustrate this channel in an model with banks, where the vulnerability of the domestic banking sector to declining government bond prices erodes the current value of bank capital. With binding capital requirement constraints, banks can be forced to recapitalise and this spreads the loss of the banking sector to corporate investment.

Figure 6 GDP under one country consolidating alone, EA-wide consolidations, and EA-wide with higher riskpremia (% diff. baseline)



Note: bold line shows scenario of 2011-13 EA-wide simultaneous consolidation, dashed line if country had been acting alone. Dotted line is simultaneous scenario with higher risk premia (sovereign/corporate IT, ES, IE: 300/200; EL, PT: 600/400)

5. Fiscal stimulus in surplus countries

Optimal policy coordination in the euro area would have required a differentiation of consolidation efforts depending on the fiscal space to minimise the negative spillovers. The periphery countries of the euro area had greater urgency to consolidate given that they faced financial market pressure, or even lost access to the markets. They had little options other than to embark on the sizeable consolidation they have undertaken. But these countries had also run large current account deficits and built up large external sustainability gaps. One way for them to grow out of their debts would have been external growth. Their current account adjustment could have been supported by simultaneous changes in euro area countries that feature large current account surpluses. Yet, the symmetry of the fiscal adjustments in all euro area countries at the same time has hampered this adjustment, with negative spillovers of consolidations in Germany and other core euro area countries further aggravating growth in deficit countries. These negative spillovers have made adjustment in the periphery harder, and have further exacerbated the temporary worsening of debt-to-GDP ratios in programme and vulnerable countries.

The degree of consolidations in Germany and other core countries was in contrast to the financial space these countries had in the crisis. A 'flight to safety' has led to record low borrowing costs for Germany and other AAA-rated core countries, with 10-year government bond yields falling to levels of 2% or lower. Even though yields have risen somewhat recently, they remain low by historical standards. In real terms, rates are close to zero or even negative. Yet in the drive to consolidate public finances, government investment has been reduced, with major infrastructure investment plans scrapped and backlogs in deferred maintenance building up. Instead, low interest rates could have been locked-in to finance an increase in public spending, by bringing forward public infrastructure projects which should, even when debt-financed, have a higher rate of return. This holds for Germany but also for other core euro area countries like the Netherlands, Finland and Austria, hit by double-dip recessions and which could benefit from a stimulus in productive spending.

To see how a fiscal stimulus can raise growth in Germany and core countries and support the adjustment in other euro areas countries, we simulate a temporary two year increase in government investment in Germany and the rest of the core EA block in the model, of 1% of GDP (Figure 7 and Table 6). [14] The impact multiplier in Germany and rest of the core block for government investment is between 0.8 and 1, not particularly large due to the relatively high degree of openness of these countries. But the GDP effect is persistent, even after the stimulus is discontinued, as productivity is higher. Import leakage leads to relatively high spillovers to other EA countries, boosting GDP by between 0.2 and 0.3 percent (smallest increase in GDP in Italy and Greece, largest in Ireland). It also leads to some rebalancing of current accounts. Surpluses are reduced by between 0.3 and 0.4 pps., however the improvement in the current accounts in periphery countries is relatively small, up to 0.1 pp. for Ireland.

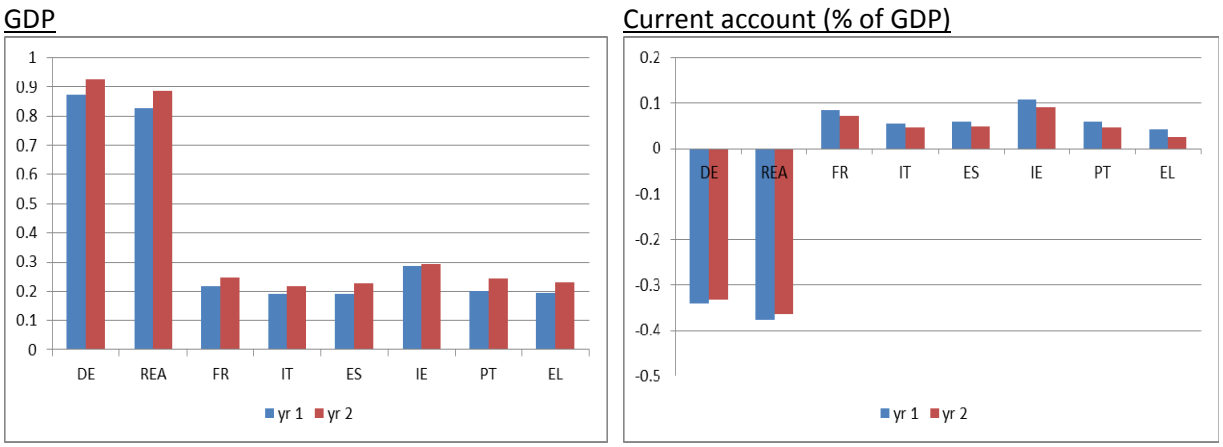
While these GDP spillovers are not insignificant, it is also evident that they do not provide a miracle cure for deficit countries. A temporary stimulus alone in the core EA cannot bring the adjustment in current accounts that are needed in deficit countries. Historically, current account adjustment in deficit countries has more relied on expenditure reduction than on expenditure switching (Lane and Milesi-Ferretti (2012)).

[14] The Netherlands, Finland and Austria make up two-third of the Rest of EA block in this model.

Analysis with an estimated model for Spain (In 't Veld *et al.* (2012)) shows adjustment occurring first and foremost through domestic absorption, with in particular a sharp decline in consumption, but the accompanying deflation and decline in unit labour costs also bringing about a strong depreciation of the real effective exchange rate. What the simulation here shows is that a stimulus in surplus countries could help this adjustment in deficit countries, but is no substitute for it.

This does of course not weaken the arguments in favour of a fiscal stimulus in core euro area countries. The case for an increase in public investment, if only for domestic reasons, is strong. Low long term yields mean low borrowing costs can be locked-in, and even though these have increased recently, they are still well below the most pessimistic estimates of social rates of return on public infrastructure.

Figure 7 Fiscal stimulus in Germany and rest of EA: increase in government investment 1% of GDP



Note: First and second year GDP (% difference from baseline) and current account (% of GDP) for temporary increase in public investment of 1% of GDP in Germany and rest of core EA.

Table 6 Stimulus in core EA: 2 year increase in government investment of 1% of GDP

Germany

Year	1	2	3	4	5	6	7	8
GDP	0.87	0.93	0.24	0.23	0.24	0.24	0.21	0.20
EMPLOYMENT	0.64	0.62	0.07	0.02	0.03	0.04	0.04	0.04
CONSUMPTION	0.20	0.24	0.15	0.17	0.17	0.17	0.16	0.15
INVESTMENT	0.18	0.19	0.16	0.17	0.18	0.18	0.17	0.15
EXPORTS	0.45	0.48	0.26	0.28	0.28	0.27	0.24	0.23
IMPORTS	1.06	1.04	0.01	0.05	0.05	0.05	0.05	0.05
PRICE.LEVEL.GDP	0.05	0.05	-0.03	-0.06	-0.07	-0.07	-0.05	-0.04
CONSUMER.PRICE.LEVEL	0.09	0.10	0.04	0.02	0.01	0.01	0.03	0.04
REER	0.11	0.14	0.21	0.24	0.25	0.24	0.22	0.21
NOM.EXCH.RATE	0.20	0.20	0.19	0.18	0.16	0.15	0.13	0.12
SOV.SPREAD.PP	-0.01	0.01	0.04	0.04	0.04	0.04	0.04	0.04
UNEMPL.RATE.PP	-0.42	-0.41	-0.05	-0.01	-0.02	-0.02	-0.03	-0.03
GOV.DEBT.PERC.OF.GDP	-0.26	0.42	1.32	1.34	1.34	1.33	1.32	1.32
GOV.BAL.PERC.OF.GDP	-0.71	-0.75	-0.03	-0.04	-0.04	-0.04	-0.05	-0.05
CURRENT.ACC.PERC.OF.GDP	-0.34	-0.33	0.03	0.02	0.01	0.01	0.01	0.01

Rest of EA

Year	1	2	3	4	5	6	7	8
GDP	0.83	0.89	0.23	0.23	0.23	0.22	0.20	0.18
EMPLOYMENT	0.59	0.57	0.07	0.01	0.02	0.03	0.03	0.03
CONSUMPTION	0.18	0.22	0.13	0.14	0.15	0.15	0.13	0.12
INVESTMENT	0.16	0.16	0.11	0.11	0.11	0.11	0.10	0.09
EXPORTS	0.48	0.51	0.25	0.27	0.26	0.26	0.23	0.21
IMPORTS	0.99	0.96	0.03	0.08	0.08	0.08	0.07	0.06
PRICE.LEVEL.GDP	0.04	0.04	-0.04	-0.07	-0.08	-0.08	-0.05	-0.04
CONSUMER.PRICE.LEVEL	0.09	0.10	0.04	0.02	0.01	0.01	0.03	0.04
REER	0.09	0.13	0.20	0.23	0.23	0.23	0.20	0.19
NOM.EXCH.RATE	0.20	0.20	0.19	0.18	0.16	0.15	0.13	0.12
SOV.SPREAD.PP	-0.00	0.02	0.04	0.04	0.04	0.04	0.04	0.04
UNEMPL.RATE.PP	-0.39	-0.38	-0.04	-0.01	-0.01	-0.02	-0.02	-0.02
GOV.DEBT.PERC.OF.GDP	-0.12	0.58	1.38	1.41	1.42	1.42	1.42	1.43
GOV.BAL.PERC.OF.GDP	-0.73	-0.78	-0.04	-0.05	-0.05	-0.05	-0.06	-0.06
CURRENT.ACC.PERC.OF.GDP	-0.38	-0.36	0.04	0.02	0.02	0.01	0.01	0.01

Spillovers

Year	1	2	3	4	5	6	7	8
GDP								
DEGDP	0.87	0.93	0.24	0.23	0.24	0.24	0.21	0.20
REAGDP	0.83	0.89	0.23	0.23	0.23	0.22	0.20	0.18
FRGDP	0.22	0.24	0.14	0.13	0.11	0.10	0.08	0.08
ITGDP	0.19	0.22	0.14	0.13	0.11	0.10	0.09	0.08
ESGDP	0.19	0.23	0.16	0.14	0.13	0.12	0.10	0.10
IEGDP	0.28	0.30	0.15	0.13	0.11	0.10	0.09	0.08
PTGDP	0.20	0.24	0.17	0.15	0.14	0.13	0.11	0.11
ELGDP	0.19	0.23	0.17	0.15	0.14	0.13	0.12	0.11
Current account (% of GDP)								
DECA	-0.34	-0.33	0.03	0.02	0.01	0.01	0.01	0.01
REACA	-0.38	-0.36	0.04	0.02	0.02	0.01	0.01	0.01
FRCA	0.08	0.07	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
ITCA	0.06	0.04	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01
ESCA	0.06	0.05	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
IRCA	0.11	0.09	-0.03	-0.03	-0.02	-0.02	-0.02	-0.02
PTCA	0.06	0.04	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
ELCA	0.04	0.02	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02

6. Concluding remarks

Successive consolidations in recent years have depressed growth in the euro area. The simulations presented here show spillover effects from simultaneous consolidations in all euro area countries at the same time have further exacerbated the recession in programme and vulnerable countries. While average impact multipliers are in the range between ½ and 1, depending on the degree of openness, negative spillovers can add between 1½ and 2½ pps. to the negative growth effects. The GDP impact could be considerably smaller if credibility is achieved earlier, as opposed to the assumed gradual learning in these scenarios, but the effects could be larger still if consolidations had been more biased towards expenditure measures.

Higher sovereign risk premia in recent years due to uncertainties related to feedback effects between banks and sovereigns and perceived redenomination risks, have further reduced growth. However, the assumed dependence in the model of sovereign spreads on current debt ratios implies myopia on the side of financial markets, as if investors do not recognise the sharp fall in sovereign debt that follow from consolidations in the medium run. If in contrast financial markets were more forward-looking and would recognise the long term improvements in debt ratios, sovereign spreads would decline immediately when a country started consolidating.[15]

The finding of large negative output effects and significant negative spillovers does of course not imply that fiscal consolidations should have been avoided. Highly indebted countries faced pressure from financial markets, or in some cases had completely lost access to markets, and a slower pace of consolidation could have raised general fears of sovereign default. Such expectations of default could lead to worse growth outcomes than consolidations per se (Corsetti et al (2012), Roeger and in 't Veld (2013)).

The crucial issue is the appropriate pace for consolidations. On the one hand one could argue that for as long as crisis conditions prevail, a slower pace, i.e. backloading some of the required adjustment to later years, may be prudent so that part of the burden can be spread over a longer period, when conditions have improved and multipliers will be smaller – i.e. when credit constraints have been reduced and monetary policy can be supportive. However, a more gradual adjustment would require a credible long term consolidation strategy designed to avoid adverse financial market reactions to a slower pace of consolidation. The challenge is to find the right pace to achieve this credibility while avoiding as much as possible the adverse growth effects in the short run.

The negative spillover effects from consolidations in surplus countries raises the question whether a temporary stimulus in AAA-rated countries could help the required rebalancing process in the euro area. Although the impact on current accounts is shown to be modest and it clearly cannot be a substitute for reforms in deficit countries, it would support growth in the core countries and spillovers to the periphery countries would ease their adjustment.

[15] Since the ECB's announcement of OMT, sovereign spreads of the most vulnerable countries have come down. To the extent that OMT is conditional on consolidation efforts, this also be could be seen as justification for more benign assumptions on sovereign spreads.

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ANNEX 1 Composition of consolidations – illustrative standard simulations for Spain

Fiscal consolidation can be achieved by various means and the macroeconomic impact depends on the composition of the adjustment. This annex illustrates this for permanent fiscal shocks for Spain, when in each case a specific instrument is shocked by 1% of baseline GDP. Crucially, it is assumed the consolidations are fully credible and expected to be permanent. A tax reaction function that stabilises the debt ratio, operating on labour taxes, is initially turned off for the first 3 years but then gradually phased in and targeting a 20 pps reduction in the debt-to-GDP ratio in the long run. The simulations assume no monetary policy response to the fiscal consolidation in the first two years (ZLB), after which the ECB reacts according to the normal Taylor rule based on monetary union aggregates.

Lower debt leads to a reduction in debt servicing costs and this creates space for higher spending or lower taxes in the future. In these simulations it is assumed this fiscal space is used to reduce labour taxes. A lower tax burden on labour raises employment and output in the long run and in most cases Figure 1 shows a positive long run GDP effect. The two exceptions are consolidations through government investment and corporate taxes. These measures lead to lower capital stock (public or private) and deliver no long run gains, even when accompanied by lower labour taxes.

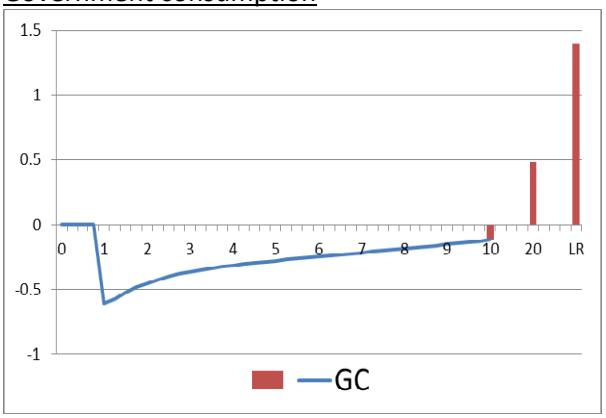
The short-run multiplier for permanent consolidations is generally smaller than for temporary shocks. This is due to the anticipatory effects of a lower future tax burden, which raises permanent income (at least for unconstrained households) and partly offset the negative short run impact of the consolidation measures. This effect crucially depends on the presence of unconstrained households who have access to capital markets and can borrow against future income. In current crisis conditions it is realistic to assume fewer agents are unconstrained and this effect is weaker than in pre-crisis conditions. (the following section illustrates how credibility assumptions can also make a difference).

Expenditure-based consolidations have larger impact multipliers than revenue-based consolidations. A reduction in government consumption has an impact multiplier of 0.6, and as it is modelled as "unproductive" spending, no negative long run growth impact. The reduction in distortionary labour taxes in the medium long run can in fact boost GDP and yields positive effects in the long term. Government investment has a slightly larger impact multiplier of 0.8, but is modelled as "productive" spending, with the public capital having a productivity raising effect. [16]Cuts in such productive spending have a long term negative GDP impact. Transfers to households have an impact multiplier of 0.3 (0.5 when targeted to constrained households). Reducing transfers, and lowering distortionary labour taxes in medium/long run, leads to positive output effects. However, this policy can have serious distributional consequences, and may therefore not be sustainable in the long run. Increases in consumption, labour and corporate profit taxes have smaller impact multipliers, between 0.2-0.4. In the long run, when debt servicing costs have been reduced and allowed for reductions in labour taxes, GDP effects are positive for consumption taxes, but negative for corporate profit taxes (the most distortionary tax).

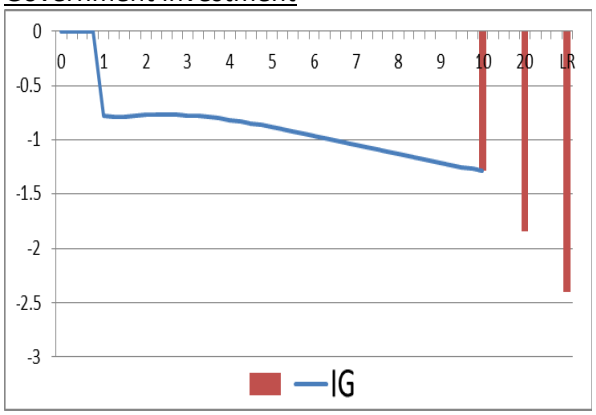
[16] The output elasticity of public capital is set to 0.10 in the model, in the middle of the range of estimates from the empirical literature. However, there is a lot of uncertainty about these estimates, and a smaller elasticity would show a smaller long term output loss.

Figure 1 GDP impact permanent fiscal consolidations (% diff. from baseline)

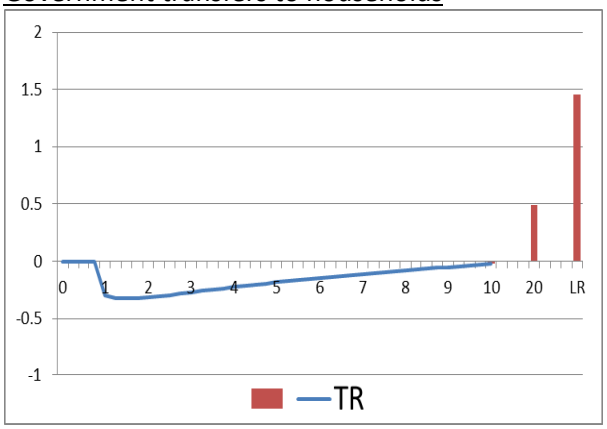
Government consumption



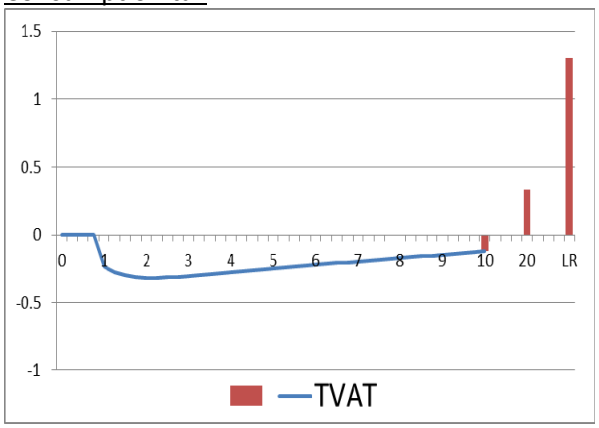
Government investment



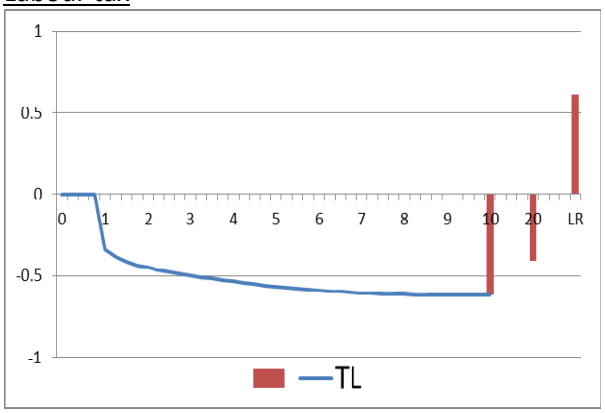
Government transfers to households



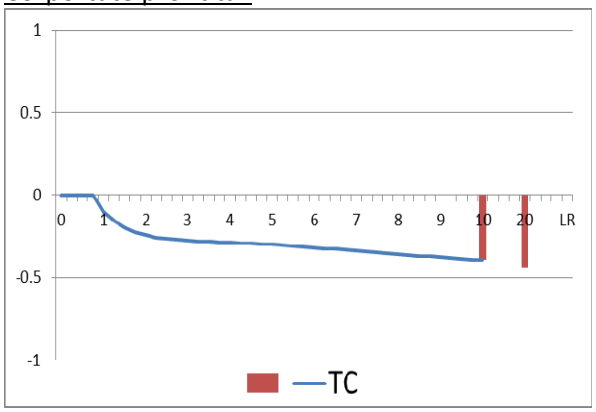
Consumption tax



Labour tax



Corporate profit tax



Note: Each scenario GDP effects (% difference from baseline) following 1% of baseline GDP consolidation in respective instrument. Long run debt-to-GDP ratio target reduced by 20 pps from baseline.

ANNEX 2. Credibility and uncertainty of successive consolidation plans

For successive multi-year consolidation measures results crucially depend on how quickly expectations are affected, and assumptions on credibility and learning are important. Fully credible consolidations can reverse expectations of increasing debt and rising future tax liabilities and, if anticipated, such confidence effects could significantly reduce the impact multiplier. But consolidations could be perceived as non-credible, when agents do not believe measures are really permanent, and expect them to be reversed later, e.g because they are perceived as non-sustainable for political or social reasons. Such prolonged uncertainty about the exact nature of policy changes can mean the gains from improved fiscal positions do not materialise immediately but take time to build up. When successive measures are introduced over several years, the question is how fast expectations were affected.

This annex illustrates this by showing some alternative scenarios for standardised successive consolidation in one country, Spain, amounting to 3% of GDP, spread over a three year period, i.e. 1% of GDP in three consecutive years, which reduce the long run debt-to-GDP ratio by 60 pps.. Figure A2 and Table A2 compare three alternative scenarios. [17] In all these scenarios the consolidation is balanced, equally distributed over revenue increases and expenditure cuts (see following section). It is also assumed nominal interest rates are not responding to changes in fiscal policy and remain unchanged for the first three years. GDP is initially negatively affected by the reduction in spending and increase in taxes but GDP is higher in the medium run as expectations of lower tax liabilities in the future boost private sector spending.

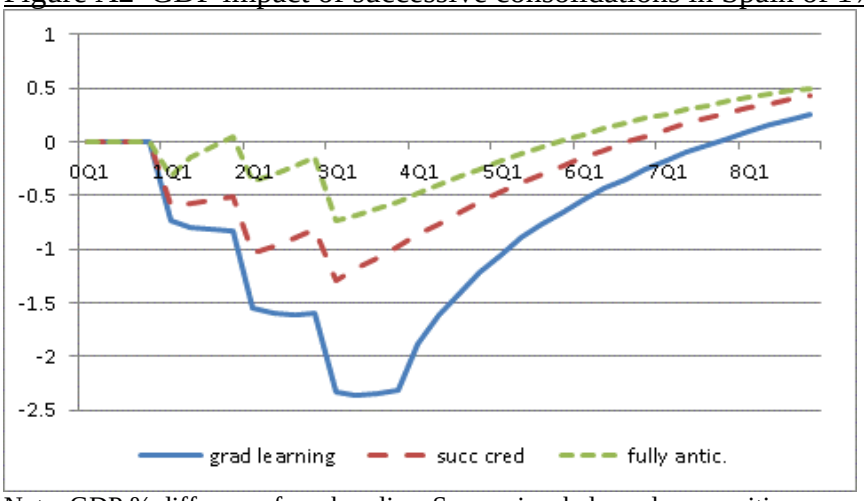
In the "*gradual learning*" scenario credibility builds up over three years. In the first two years there is uncertainty about the persistence of the austerity measures. Measures are not anticipated to be fully permanent but expectations are formed on the basis of past persistence of policy shocks, gradually fading away. I.e. at this early stage agents consider the tax rises and spending cuts persistent, but not permanent measures, and do not fully anticipate the benefits of the austerity measures guaranteeing debt sustainability and lower taxes in the future. Only after three years do the consolidation measures gain full credibility and are long term benefits in terms of lower public indebtedness and a lower future tax burden fully included in agents' expectations. As the impact multiplier of temporary shocks is larger than that for permanent shocks,[18] for as long as the consolidation is not fully anticipated, the multiplier is larger. For a balanced composition consolidation the first year multiplier for Spain is around 0.8. In the second year an additional austerity round reduces GDP growth further, and only after the third year is credibility gained. Anticipatory effects of lower future public debt and lower tax burden then lead to a sharp recovery and GDP returns gradually to baseline.

[17] In model-technical terms, the differences between these scenarios lies in the way expectations are adjusted. In the 'gradual learning' scenario, the first year's austerity measures are expected to remain in place for one year, and then reduced gradually with autoregressive coefficient of 0.9, in line with estimated persistence of shocks in empirical studies. In the second year, new austerity measures are taken and a new simulation overlays these results from the second year onwards with additional measures with a similar anticipated persistence based on historical data. A third simulation overlays this again with a new consolidation round in year three. Only after the third year are the austerity measures expected to be permanent from then on. In the 'successive credibility' case a similar sequence of simulations is done but each assuming austerity measures are permanent in each round. 'Fully anticipated' assumes all successive rounds are fully anticipated from the start.

[18] See Roeger and in 't Veld (2010), Coenen et al. (2012).

The second scenario ("*successive credibility*") assumes each successive consolidation round is fully credible, but future rounds are not yet anticipated in the first quarter. There is no uncertainty about the persistence of the shocks, and in the first year, agents believe deficits are permanently reduced by 1% of GDP, government debt ratios are on a declining path, and they fully anticipate lower future tax liabilities associated with that year's deficit reduction. If households have access to financial markets and can borrow against their higher permanent income, they can increase their spending and this reduces the negative impact of the consolidation measures. [19] In the second year further austerity measures are introduced and agents revise their expectations of future tax liabilities in line with this additional reduction in the deficit, and so on. This is equivalent to a sequence of standard consolidation scenarios, which for an average composition in 'crisis' conditions have an annual multiplier of around 0.5-0.6 (see Table A2.b).

Figure A2 GDP impact of successive consolidations in Spain of 1% of GDP:



Note: GDP % difference from baseline. Successive balanced composition consolidations of 1% of GDP for three years. Gradual learning assumes full credibility only achieved in year 3, successive credibility assumes each year's consolidation round is fully credible, fully anticipated assumes future consolidations are already fully anticipated in year 1.

In the *fully anticipated* scenario this sequence of measures over three years is fully anticipated already in the first quarter in the simulation (see Table A2.c). Expectations of lower future debt burden and correspondingly lower tax liabilities boost private demand, partly offsetting the contractionary effects of the consolidations. [20] On impact the first quarter multiplier is around 0.3, but over the year anticipatory effects of further austerity measures in the following year lead to some frontloading of spending and a lower average multiplier over the first year of only 0.1. [21] In the second year GDP falls further but again anticipatory effects of the third year's consolidation reduce the fall in GDP in the final quarters. In the third year GDP is around 0.7 below baseline, for a consolidation of 3% of GDP. Anticipation of lower future labour taxes already boosts employment in the first year in this scenario. This is clearly not something that has been observed in consolidating countries, which indicates this is an unlikely hypothesis.

[19] These scenarios assume half of all households are not constrained and have access to financial markets. This may be an optimistic assumption if the financial system is under severe stress.

[20] As above this assumes a share of agents have access to financial markets.

[21] E.g. consumption can be frontloaded as an anticipated increase in VAT changes the intertemporal terms of trade and forward-looking consumers respond to this in t-1 (assuming the VAT increase is fully passed through into consumer prices).

Table A2 Successive consolidations in Spain, 3% of GDP, spread over three years

a. Gradual learning:

Year	1	2	3	4	5	6	7	8
GDP	-0.79	-1.59	-2.34	-1.53	-0.84	-0.40	-0.07	0.18
EMPLOYMENT	-0.33	-0.66	-0.91	-0.11	0.71	1.27	1.68	1.99
CONSUMPTION	-0.74	-1.55	-2.30	-1.30	-0.42	0.02	0.30	0.51
INVESTMENT	-0.25	-0.56	-0.84	-2.53	-3.19	-2.82	-2.24	-1.68
EXPORTS	0.02	0.10	0.22	1.11	1.72	2.16	2.49	2.74
IMPORTS	-0.72	-1.50	-2.30	-2.17	-2.08	-2.01	-1.94	-1.88
PRICE.LEVEL.GDP	-0.13	-0.44	-0.89	-1.60	-2.29	-2.85	-3.28	-3.63
CONSUMER.PRICE.LEVEL	0.38	0.62	0.72	0.21	-0.33	-0.78	-1.13	-1.40
REER	0.10	0.32	0.63	1.51	2.23	2.80	3.24	3.57
NOM.EXCH.RATE	-0.06	-0.17	-0.36	0.06	0.06	0.04	0.00	-0.03
NOM.INT.RATE (PP)	-0.00	-0.00	-0.00	-0.00	-0.02	-0.04	-0.04	-0.05
SOV.SPREAD (pp)	0.01	0.00	-0.03	-0.11	-0.21	-0.31	-0.42	-0.54
UNEMPL.RATE (pp)	0.20	0.41	0.56	0.07	-0.44	-0.78	-1.04	-1.23
GOV.DEBT (% of GDP)	0.32	0.06	-0.93	-3.75	-6.87	-10.29	-14.01	-18.01
GOV.BAL (% of GDP)	0.72	1.48	2.33	2.92	3.51	3.99	4.40	4.79
CURRENT.ACC (% of GDP)	0.23	0.49	0.75	0.80	0.80	0.78	0.76	0.74

b. Successive credibility

Year	1	2	3	4	5	6	7	8
GDP	-0.56	-0.93	-1.13	-0.71	-0.34	-0.04	0.19	0.37
EMPLOYMENT	-0.12	-0.02	0.28	0.82	1.31	1.70	2.00	2.23
CONSUMPTION	-0.40	-0.59	-0.62	-0.23	0.07	0.32	0.51	0.66
INVESTMENT	-0.94	-2.22	-3.28	-3.33	-2.82	-2.22	-1.67	-1.21
EXPORTS	0.27	0.74	1.35	1.85	2.25	2.57	2.80	2.98
IMPORTS	-0.65	-1.30	-1.93	-1.99	-1.97	-1.92	-1.86	-1.81
PRICE.LEVEL.GDP	-0.21	-0.68	-1.35	-1.98	-2.48	-2.88	-3.18	-3.42
CONSUMER.PRICE.LEVEL	0.35	0.50	0.49	-0.00	-0.40	-0.71	-0.95	-1.14
REER	0.29	0.85	1.62	2.29	2.83	3.25	3.57	3.81
NOM.EXCH.RATE	0.15	0.31	0.46	0.46	0.46	0.45	0.44	0.42
NOM.INT.RATE (pp)	0.00	0.00	0.00	-0.00	-0.01	-0.01	-0.02	-0.02
SOV.SPREAD (pp)	0.00	-0.02	-0.08	-0.17	-0.27	-0.38	-0.50	-0.62
UNEMPL.RATE (pp)	0.07	0.02	-0.17	-0.51	-0.81	-1.05	-1.24	-1.38
GOV.DEBT (% of GDP)	0.07	-0.73	-2.59	-5.59	-8.95	-12.64	-16.60	-20.79
GOV.BAL (% of GDP)	0.85	1.87	3.05	3.47	3.89	4.30	4.68	5.04
CURRENT.ACC (% of GDP)	0.23	0.49	0.73	0.77	0.77	0.76	0.74	0.73

c. Full anticipation

Year	1	2	3	4	5	6	7	8
GDP	-0.10	-0.26	-0.65	-0.37	-0.09	0.14	0.32	0.46
EMPLOYMENT	0.35	0.67	0.84	1.23	1.61	1.92	2.15	2.34
CONSUMPTION	0.27	0.33	-0.04	0.11	0.31	0.49	0.64	0.75
INVESTMENT	-2.36	-3.67	-3.56	-3.02	-2.44	-1.93	-1.50	-1.15
EXPORTS	0.78	1.32	1.80	2.20	2.51	2.74	2.92	3.05
IMPORTS	-0.52	-1.20	-1.88	-1.94	-1.92	-1.87	-1.83	-1.79
PRICE.LEVEL.GDP	-0.48	-1.17	-1.80	-2.31	-2.71	-3.01	-3.24	-3.41
CONSUMER.PRICE.LEVEL	0.19	0.15	0.15	-0.24	-0.55	-0.79	-0.97	-1.11
REER	0.75	1.50	2.18	2.73	3.16	3.49	3.73	3.91
NOM.EXCH.RATE	0.57	0.57	0.57	0.58	0.58	0.58	0.58	0.57
NOM.INT.RATE (pp)	0.00	0.00	0.00	-0.00	-0.01	-0.01	-0.01	-0.01
SOV.SPREAD (pp)	-0.01	-0.04	-0.10	-0.20	-0.30	-0.42	-0.54	-0.67
UNEMPL.RATE (pp)	-0.22	-0.41	-0.52	-0.77	-1.00	-1.19	-1.34	-1.45
GOV.DEBT (% of GDP)	-0.42	-1.42	-3.37	-6.57	-10.13	-13.98	-18.06	-22.35
GOV.BAL (% of GDP)	1.13	2.25	3.35	3.71	4.09	4.47	4.83	5.17
CURRENT.ACC (% of GDP)	0.24	0.48	0.72	0.75	0.75	0.74	0.72	0.71

Note: percent difference from baseline.

All in all, the GDP impact is larger the longer uncertainty persists. With successive consolidations early credibility, or even full anticipation, may be the most desired scenario, but this may not be easily achievable. Many survey indicators point to a high level of uncertainty in recent years and this suggests gradual learning is a more realistic assumption. For this reason the scenarios in this paper are based on this assumption. But it should be borne in mind that macroeconomic effects could be between one-third and one-half smaller if the consolidation profile is perceived as fully credible.

ANNEX 3 Country specific tables standardised consolidations

Table A3 Macroeconomic impact standardised 3-year consolidation scenarios (balanced expenditure-revenue composition, average acting alone)

Germany

Year	1	2	3	4	5	6	7	8
GDP	-0.75	-1.54	-2.31	-1.35	-0.68	-0.29	-0.04	0.13
EMPLOYMENT	-0.33	-0.69	-1.00	-0.03	0.82	1.32	1.66	1.90
CONSUMPTION	-0.74	-1.58	-2.42	-1.49	-0.69	-0.34	-0.14	-0.01
INVESTMENT	-0.29	-0.71	-1.18	-1.99	-2.09	-1.67	-1.22	-0.81
EXPORTS	-0.07	-0.15	-0.23	0.88	1.45	1.84	2.09	2.26
IMPORTS	-0.68	-1.46	-2.28	-1.96	-1.68	-1.54	-1.46	-1.40
PRICE.LEVEL.GDP	-0.14	-0.48	-1.01	-1.76	-2.37	-2.86	-3.26	-3.58
CONSUMER.PRICE.LEVEL	0.36	0.55	0.57	0.17	-0.27	-0.63	-0.94	-1.20
REER	0.05	0.19	0.40	1.47	2.05	2.49	2.81	3.03
NOM.EXCH.RATE	-0.12	-0.34	-0.64	0.05	0.03	-0.03	-0.11	-0.21
SOV.SPREAD (pp)	0.01	-0.01	-0.04	-0.12	-0.22	-0.32	-0.43	-0.55
UNEMPL.RATE (pp)	0.22	0.46	0.66	0.02	-0.54	-0.87	-1.09	-1.24
GOV.DEBT (% of GDP)	0.19	-0.18	-1.21	-4.12	-7.31	-10.75	-14.44	-18.32
GOV.BAL (% of GDP)	0.75	1.52	2.35	2.96	3.55	4.00	4.36	4.68
CURRENT.ACC (% of GDP)	0.29	0.63	0.97	0.98	0.93	0.90	0.88	0.86
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers								
DEGDP	-0.75	-1.54	-2.31	-1.35	-0.68	-0.29	-0.04	0.13
REAGDP	-0.12	-0.31	-0.57	-0.10	0.10	0.17	0.20	0.21
FRGDP	-0.10	-0.27	-0.51	-0.10	0.09	0.15	0.17	0.17
ITGDP	-0.09	-0.25	-0.48	-0.09	0.09	0.15	0.16	0.16
ESGDP	-0.09	-0.26	-0.50	-0.10	0.09	0.16	0.17	0.18
IEGDP	-0.11	-0.31	-0.58	-0.06	0.09	0.14	0.16	0.16
PTGDP	-0.09	-0.27	-0.52	-0.13	0.07	0.13	0.15	0.16
ELGDP	-0.09	-0.27	-0.53	-0.09	0.12	0.17	0.18	0.18

Rest of core EA

Year	1	2	3	4	5	6	7	8
GDP	-0.68	-1.39	-2.06	-1.36	-0.82	-0.50	-0.30	-0.16
EMPLOYMENT	-0.26	-0.53	-0.74	0.02	0.73	1.17	1.47	1.68
CONSUMPTION	-0.72	-1.53	-2.32	-1.64	-1.03	-0.74	-0.58	-0.48
INVESTMENT	-0.24	-0.61	-1.00	-1.99	-2.37	-2.21	-1.93	-1.66
EXPORTS	-0.04	-0.06	-0.08	0.69	1.13	1.43	1.63	1.75
IMPORTS	-0.57	-1.21	-1.88	-1.60	-1.41	-1.30	-1.23	-1.17
PRICE.LEVEL.GDP	-0.13	-0.43	-0.88	-1.55	-2.11	-2.55	-2.89	-3.15
CONSUMER.PRICE.LEVEL	0.39	0.63	0.76	0.40	0.01	-0.29	-0.54	-0.73
REER	0.07	0.25	0.51	1.33	1.88	2.29	2.58	2.78
NOM.EXCH.RATE	-0.08	-0.22	-0.42	0.01	0.00	-0.04	-0.09	-0.16
SOV.SPREAD (pp)	0.00	-0.02	-0.06	-0.14	-0.23	-0.33	-0.44	-0.55
UNEMPL.RATE (pp)	0.18	0.36	0.49	-0.01	-0.49	-0.79	-0.99	-1.13
GOV.DEBT (% of GDP)	0.04	-0.59	-1.96	-4.74	-7.80	-11.10	-14.61	-18.31
GOV.BAL (% of GDP)	0.78	1.60	2.49	2.97	3.46	3.85	4.17	4.46
CURRENT.ACC (% of GDP)	0.33	0.71	1.09	1.09	1.05	1.01	0.97	0.94
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers								
DEGDP	-0.09	-0.22	-0.40	-0.10	0.02	0.06	0.08	0.09
REAGDP	-0.68	-1.39	-2.06	-1.36	-0.82	-0.50	-0.30	-0.16
FRGDP	-0.07	-0.19	-0.35	-0.09	0.04	0.08	0.09	0.09
ITGDP	-0.06	-0.17	-0.32	-0.07	0.04	0.08	0.09	0.09
ESGDP	-0.06	-0.17	-0.33	-0.08	0.05	0.09	0.10	0.10
IEGDP	-0.11	-0.26	-0.47	-0.13	-0.02	0.03	0.05	0.07
PTGDP	-0.06	-0.17	-0.34	-0.10	0.03	0.08	0.09	0.10
ELGDP	-0.06	-0.18	-0.36	-0.08	0.05	0.09	0.10	0.11

France

Year	1	2	3	4	5	6	7	8
GDP	-0.82	-1.67	-2.49	-1.54	-0.82	-0.39	-0.10	0.11
EMPLOYMENT	-0.37	-0.78	-1.13	-0.19	0.68	1.22	1.58	1.85
CONSUMPTION	-0.75	-1.58	-2.38	-1.32	-0.42	0.02	0.28	0.46
INVESTMENT	-0.32	-0.75	-1.16	-2.21	-2.35	-1.80	-1.18	-0.61
EXPORTS	-0.02	-0.03	-0.04	1.13	1.74	2.15	2.44	2.63
IMPORTS	-0.75	-1.59	-2.45	-2.22	-1.98	-1.86	-1.78	-1.71
PRICE.LEVEL.GDP	-0.15	-0.50	-1.04	-1.77	-2.41	-2.92	-3.33	-3.66
CONSUMER.PRICE.LEVEL	0.35	0.52	0.52	0.02	-0.48	-0.90	-1.24	-1.51
REER	0.08	0.27	0.52	1.58	2.23	2.72	3.08	3.34
NOM.EXCH.RATE	-0.10	-0.33	-0.69	0.04	0.03	-0.02	-0.10	-0.19
SOV.SPREAD (pp)	0.01	0.01	-0.02	-0.11	-0.20	-0.30	-0.42	-0.53
UNEMPL.RATE (pp)	0.25	0.51	0.74	0.13	-0.45	-0.80	-1.04	-1.21
GOV.DEBT (% of GDP)	0.35	0.19	-0.62	-3.51	-6.70	-10.16	-13.88	-17.83
GOV.BAL (% of GDP)	0.72	1.46	2.27	2.90	3.52	3.99	4.39	4.74
CURRENT.ACC (% of GDP)	0.23	0.48	0.73	0.78	0.74	0.72	0.70	0.67
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers								
DEGDP	-0.08	-0.23	-0.44	0.02	0.15	0.18	0.18	0.18
REAGDP	-0.08	-0.22	-0.43	0.02	0.16	0.19	0.20	0.20
FRGDP	-0.82	-1.67	-2.49	-1.54	-0.82	-0.39	-0.10	0.11
ITGDP	-0.07	-0.20	-0.40	-0.02	0.13	0.17	0.17	0.17
ESGDP	-0.07	-0.22	-0.44	-0.04	0.13	0.18	0.20	0.21
IEGDP	-0.09	-0.25	-0.49	0.04	0.15	0.17	0.17	0.17
PTGDP	-0.08	-0.23	-0.45	-0.07	0.11	0.16	0.18	0.19
ELGDP	-0.07	-0.23	-0.46	-0.02	0.15	0.18	0.18	0.18

Italy

Year	1	2	3	4	5	6	7	8
GDP	-0.85	-1.70	-2.49	-1.62	-0.93	-0.50	-0.22	-0.02
EMPLOYMENT	-0.42	-0.85	-1.19	-0.29	0.59	1.14	1.52	1.78
CONSUMPTION	-0.82	-1.66	-2.42	-1.48	-0.62	-0.18	0.09	0.27
INVESTMENT	-0.40	-0.86	-1.25	-2.37	-2.63	-2.14	-1.53	-0.96
EXPORTS	0.01	0.04	0.09	1.23	1.83	2.23	2.50	2.68
IMPORTS	-0.79	-1.61	-2.41	-2.26	-2.11	-1.98	-1.87	-1.77
PRICE.LEVEL.GDP	-0.22	-0.67	-1.30	-2.13	-2.83	-3.37	-3.79	-4.11
CONSUMER.PRICE.LEVEL	0.29	0.37	0.26	-0.32	-0.90	-1.35	-1.71	-1.99
REER	0.15	0.42	0.78	1.93	2.64	3.16	3.52	3.78
NOM.EXCH.RATE	-0.10	-0.35	-0.73	-0.08	-0.10	-0.16	-0.24	-0.34
SOV.SPREAD (pp)	0.03	0.04	0.04	-0.05	-0.14	-0.24	-0.35	-0.47
UNEMPL.RATE (pp)	0.27	0.56	0.78	0.19	-0.39	-0.75	-1.00	-1.17
GOV.DEBT (% of GDP)	0.83	1.32	1.22	-1.52	-4.55	-7.90	-11.59	-15.60
GOV.BAL (% of GDP)	0.64	1.32	2.08	2.71	3.38	3.92	4.38	4.80
CURRENT.ACC (% of GDP)	0.24	0.50	0.76	0.81	0.79	0.76	0.72	0.69
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers								
DEGDP	-0.07	-0.21	-0.42	-0.01	0.11	0.14	0.14	0.14
REAGDP	-0.06	-0.20	-0.39	0.00	0.12	0.15	0.16	0.15
FRGDP	-0.06	-0.20	-0.41	-0.05	0.10	0.13	0.14	0.14
ITGDP	-0.85	-1.70	-2.49	-1.62	-0.93	-0.50	-0.22	-0.02
ESGDP	-0.06	-0.20	-0.41	-0.07	0.09	0.13	0.14	0.15
IEGDP	-0.08	-0.24	-0.46	0.01	0.12	0.14	0.15	0.15
PTGDP	-0.07	-0.21	-0.43	-0.09	0.06	0.11	0.12	0.12
ELGDP	-0.07	-0.23	-0.46	-0.08	0.08	0.12	0.13	0.14

Spain

Year	1	2	3	4	5	6	7	8
GDP	-0.79	-1.59	-2.34	-1.53	-0.84	-0.40	-0.07	0.18
EMPLOYMENT	-0.33	-0.66	-0.91	-0.11	0.71	1.27	1.68	1.99
CONSUMPTION	-0.74	-1.55	-2.30	-1.30	-0.42	0.02	0.30	0.51
INVESTMENT	-0.25	-0.56	-0.84	-2.53	-3.19	-2.82	-2.24	-1.68
EXPORTS	0.02	0.10	0.22	1.11	1.72	2.16	2.49	2.74
IMPORTS	-0.72	-1.50	-2.30	-2.17	-2.08	-2.01	-1.94	-1.88
PRICE.LEVEL.GDP	-0.13	-0.44	-0.89	-1.60	-2.29	-2.85	-3.28	-3.63
CONSUMER.PRICE.LEVEL	0.38	0.62	0.72	0.21	-0.33	-0.78	-1.13	-1.40
REER	0.10	0.32	0.63	1.51	2.23	2.80	3.24	3.57
NOM.EXCH.RATE	-0.06	-0.17	-0.36	0.06	0.06	0.04	0.00	-0.03
SOV.SPREAD (pp)	0.01	0.00	-0.03	-0.11	-0.21	-0.31	-0.42	-0.54
UNEMPL.RATE (pp)	0.20	0.41	0.56	0.07	-0.44	-0.78	-1.04	-1.23
GOV.DEBT (% of GDP)	0.32	0.06	-0.93	-3.75	-6.87	-10.29	-14.01	-18.01
GOV.BAL (% of GDP)	0.72	1.48	2.33	2.92	3.51	3.99	4.40	4.79
CURRENT.ACC (% of GDP)	0.23	0.49	0.75	0.80	0.80	0.78	0.76	0.74
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers								
DEGDP	-0.04	-0.11	-0.22	0.04	0.11	0.12	0.11	0.11
REAGDP	-0.04	-0.11	-0.21	0.04	0.11	0.12	0.12	0.11
FRGDP	-0.04	-0.12	-0.23	0.00	0.09	0.11	0.11	0.11
ITGDP	-0.04	-0.11	-0.21	0.01	0.09	0.11	0.11	0.11
ESGDP	-0.79	-1.59	-2.34	-1.53	-0.84	-0.40	-0.07	0.18
IEGDP	-0.05	-0.14	-0.26	0.04	0.10	0.11	0.11	0.11
PTGDP	-0.10	-0.24	-0.42	-0.18	-0.06	-0.00	0.03	0.06
ELGDP	-0.04	-0.12	-0.24	0.01	0.10	0.12	0.12	0.12

Portugal

Year	1	2	3	4	5	6	7	8
GDP	-0.75	-1.46	-2.09	-1.52	-0.97	-0.61	-0.35	-0.16
EMPLOYMENT	-0.28	-0.51	-0.64	-0.05	0.60	1.06	1.40	1.65
CONSUMPTION	-0.82	-1.66	-2.40	-1.58	-0.89	-0.55	-0.35	-0.20
INVESTMENT	-0.23	-0.42	-0.50	-1.84	-2.42	-2.18	-1.77	-1.37
EXPORTS	0.08	0.24	0.46	0.92	1.38	1.73	1.98	2.16
IMPORTS	-0.72	-1.47	-2.18	-2.05	-1.98	-1.93	-1.88	-1.84
PRICE.LEVEL.GDP	-0.12	-0.37	-0.72	-1.27	-1.85	-2.29	-2.62	-2.86
CONSUMER.PRICE.LEVEL	0.42	0.75	1.00	0.60	0.19	-0.13	-0.37	-0.54
REER	0.12	0.36	0.69	1.27	1.87	2.32	2.66	2.91
NOM.EXCH.RATE	-0.01	-0.02	-0.04	0.02	0.01	0.01	0.01	0.00
SOV.SPREAD (pp)	0.02	0.01	-0.02	-0.10	-0.19	-0.29	-0.40	-0.52
UNEMPL.RATE (pp)	0.18	0.33	0.42	0.03	-0.40	-0.70	-0.92	-1.09
GOV.DEBT (% of GDP)	0.52	0.42	-0.52	-3.29	-6.32	-9.64	-13.28	-17.19
GOV.BAL (% of GDP)	0.71	1.48	2.37	2.88	3.41	3.86	4.26	4.65
CURRENT.ACC (% of GDP)	0.31	0.64	0.97	0.95	0.93	0.92	0.90	0.88
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers								
DEGDP	-0.01	-0.02	-0.03	0.00	0.01	0.02	0.02	0.02
REAGDP	-0.00	-0.01	-0.03	0.01	0.02	0.02	0.02	0.02
FRGDP	-0.01	-0.02	-0.03	-0.00	0.01	0.02	0.02	0.02
ITGDP	-0.00	-0.01	-0.03	0.00	0.01	0.02	0.02	0.02
ESGDP	-0.01	-0.03	-0.05	-0.01	0.01	0.02	0.03	0.03
IEGDP	-0.01	-0.02	-0.04	0.00	0.01	0.01	0.02	0.02
PTGDP	-0.75	-1.46	-2.09	-1.52	-0.97	-0.61	-0.35	-0.16
ELGDP	-0.00	-0.02	-0.03	0.00	0.02	0.02	0.02	0.02

Ireland

Year	1	2	3	4	5	6	7	8
GDP	-0.53	-1.01	-1.44	-1.02	-0.61	-0.34	-0.14	-0.01
EMPLOYMENT	-0.11	-0.16	-0.13	0.36	0.90	1.28	1.56	1.77
CONSUMPTION	-0.80	-1.67	-2.48	-1.94	-1.52	-1.38	-1.31	-1.27
INVESTMENT	-0.12	-0.27	-0.39	-1.32	-1.83	-1.85	-1.74	-1.62
EXPORTS	0.04	0.15	0.30	0.61	0.94	1.19	1.37	1.50
IMPORTS	-0.56	-1.16	-1.74	-1.60	-1.50	-1.47	-1.44	-1.43
PRICE.LEVEL.GDP	-0.08	-0.26	-0.51	-0.95	-1.42	-1.78	-2.05	-2.24
CONSUMER.PRICE.LEVEL	0.48	0.92	1.32	1.14	0.94	0.79	0.67	0.59
REER	0.08	0.25	0.49	0.94	1.42	1.79	2.06	2.26
NOM.EXCH.RATE	-0.00	-0.00	0.00	0.02	0.02	0.02	0.01	0.01
SOV.SPREAD (pp)	0.01	-0.01	-0.06	-0.14	-0.24	-0.34	-0.45	-0.57
UNEMPL.RATE (pp)	0.07	0.11	0.08	-0.24	-0.59	-0.84	-1.03	-1.16
GOV.DEBT (% of GDP)	0.18	-0.42	-1.92	-4.82	-7.93	-11.31	-14.96	-18.85
GOV.BAL (% of GDP)	0.80	1.68	2.66	3.11	3.57	3.96	4.33	4.68
CURRENT.ACC (% of GDP)	0.50	1.06	1.61	1.54	1.48	1.47	1.45	1.43
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers								
DEGDP	-0.01	-0.01	-0.02	-0.01	0.00	0.00	0.01	0.01
REAGDP	-0.01	-0.02	-0.03	-0.01	-0.00	0.01	0.01	0.01
FRGDP	-0.00	-0.01	-0.02	-0.01	0.00	0.01	0.01	0.01
ITGDP	-0.00	-0.01	-0.02	-0.01	0.00	0.00	0.01	0.01
ESGDP	-0.00	-0.01	-0.02	-0.01	0.00	0.01	0.01	0.01
IEGDP	-0.53	-1.01	-1.44	-1.02	-0.61	-0.34	-0.14	-0.01
PTGDP	-0.00	-0.01	-0.02	-0.01	0.00	0.00	0.01	0.01
ELGDP	-0.00	-0.01	-0.02	-0.00	0.01	0.01	0.01	0.01

Greece

Year	1	2	3	4	5	6	7	8
GDP	-0.86	-1.63	-2.26	-1.68	-1.09	-0.67	-0.36	-0.13
EMPLOYMENT	-0.42	-0.77	-0.96	-0.31	0.44	0.99	1.40	1.70
CONSUMPTION	-0.94	-1.79	-2.46	-1.75	-1.06	-0.65	-0.38	-0.18
INVESTMENT	-0.49	-0.86	-0.96	-2.50	-3.09	-2.66	-2.02	-1.39
EXPORTS	0.12	0.35	0.65	1.27	1.85	2.27	2.58	2.79
IMPORTS	-0.91	-1.76	-2.51	-2.55	-2.54	-2.47	-2.37	-2.27
PRICE.LEVEL.GDP	-0.22	-0.62	-1.13	-1.84	-2.55	-3.08	-3.47	-3.74
CONSUMER.PRICE.LEVEL	0.31	0.47	0.54	-0.01	-0.56	-0.98	-1.28	-1.50
REER	0.21	0.60	1.07	1.85	2.59	3.14	3.54	3.83
NOM.EXCH.RATE	-0.01	-0.04	-0.08	-0.00	-0.00	-0.01	-0.02	-0.03
SOV.SPREAD (pp)	0.04	0.06	0.06	-0.01	-0.09	-0.18	-0.29	-0.41
UNEMPL.RATE (pp)	0.27	0.51	0.63	0.21	-0.29	-0.65	-0.92	-1.11
GOV.DEBT (% of GDP)	1.27	2.11	2.10	-0.32	-2.99	-6.09	-9.63	-13.56
GOV.BAL (% of GDP)	0.57	1.22	2.03	2.55	3.12	3.64	4.13	4.60
CURRENT.ACC (% of GDP)	0.31	0.61	0.89	0.94	0.95	0.93	0.90	0.86
FISCAL.EFFORT(% of GDP)	*1.00*	*2.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*	*3.00*
Spillovers								
DEGDP	-0.01	-0.02	-0.05	0.00	0.02	0.02	0.02	0.02
REAGDP	-0.00	-0.02	-0.05	0.00	0.02	0.03	0.03	0.03
FRGDP	-0.01	-0.02	-0.05	-0.00	0.02	0.02	0.02	0.02
ITGDP	-0.01	-0.02	-0.05	-0.01	0.01	0.02	0.02	0.02
ESGDP	-0.01	-0.02	-0.05	-0.00	0.02	0.02	0.02	0.02
IEGDP	-0.01	-0.03	-0.05	0.00	0.02	0.02	0.02	0.02
PTGDP	-0.01	-0.02	-0.05	-0.01	0.01	0.02	0.02	0.02
ELGDP	-0.86	-1.63	-2.26	-1.68	-1.09	-0.67	-0.36	-0.13

Note: percent(age) difference from baseline.

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