POLICY PAPER 61 ► 23 JANUARY 2013

MAKING ONE SIZE FIT ALL

DESIGNING A CYCLICAL ADJUSTMENT INSURANCE FUND FOR THE EUROZONE

Henrik Enderlein | *He is a professor of political economy at the Hertie School of Governance and is currently the Pierre Keller visiting professor at the Harvard Kennedy School. He is an associate research fellow at* Notre Europe – Jacques Delors Institute *and the coordinator of the report of the Tommaso Padoa-Schioppa Group, "Completing the euro - A road map towards fiscal union in Europe", which may be found in English, French and German on our website.*

Lucas Guttenberg | *He is a McCloy Fellow and a Master in Public Policy candidate at Harvard Kennedy School, working on economic policymaking and European politics. He studied economics and political science at the French-German campus of Sciences Po Paris in Nancy and at Columbia University and holds a B.A. from Sciences Po.*

Jann Spiess | *He is a McCloy Fellow and a Master in Public Policy candidate at Harvard Kennedy School, where he focuses on international financial policy, behavioral economics and econometric methods. He obtained his BSc in mathematics from Technische Universität München and holds a master's degree in mathematics from the University of Cambridge.*

SUMMARY

The report of the four Presidents published in December 2012, "Towards a Genuine Economic and Moneteray Union" highlighted the need for a "shock absorption" capacity at the level of the euro area. We seek to contribute to this reflexion by proposing a Cyclical Adjustment Insurance Fund (CAIF) based on differences in output gaps.

To increase the convergence of business cycles across eurozone economies, the system would channel funds from overheating economies to those in downturn, hence substantially alleviating the procyclicality of the ECB's "one size fits all" monetary policy. We use the synthetic output gap as indicator of an economy's business cycle position. CAIF flows are then based on the difference between a member state's output gap and the euro area aggregate output gap. The Fund is by definition balanced every year, and our simulation suggests that countries come close to a net-zero position over the long run.

"PROPOSING A CYCLICAL ADJUSTMENT INSURANCE FUND (CAIF) BASED ON DIFFERENCES IN OUTPUT GAPS"

In our baseline scenario, we assume that transfers represent 50% of the difference between individual and aggregate output gaps. We assume the fiscal multiplier to be at 1.2 as payments will substantially mitigate feedback loops, stretched over three years. Based on these assumptions, our simulation shows that, had the Fund been in place at the inception of the euro, the average standard deviation of individual output gaps from the eurozone aggregate output gap would have been 39.4% lower than what was experienced in the past 14 years. Furthermore, smoothing effects would have been the strongest in times where differences had become the starkest, namely in the run-up to the crisis 2005-2007 and in the last two years. Almost all EMU founding members would have been close to a net-zero financial position at the end of the simulation period.

This Policy Paper is an implementation proposal to the idea of a cyclical insurance adjustment fund presented in the report of the "Tommaso Padoa-Schioppa Group" (Enderlein *et al.* 2012).

TABLE OF CONTENTS

1. Why stabilization policy at the European level?

"A Community fiscal stabilisation policy is a key element in any programme for European monetary integration." This sentence, taken out of the MacDougall report that the Commission published 35 years ago (MacDougall *et al.* 1977), is as topical today as ever. As the report by the "Padoa-Schioppa Group" elaborates in detail, having a single monetary policy has a procyclical effect if inflation differentials persist due to lack of market integration and labour mobility: real interest rates are systematically too high for those countries that are already in downturn while being too low for those economies in a boom or already overheating (Enderlein *et al.* 2012).

> "HAVING A SINGLE MONETARY POLICY HAS A PROCYCLICAL EFFECT IF INFLATION DIFFERENTIALS PERSIST"

In a monetary union, some kind of stabilization mechanism is necessary to counter this effect and to achieve some degree of convergence across individual member states' business cycles – at least as long as market-based adjustment channels do not work properly (cf. Mundell 1961). Additionally, there is evidence that in integrated economies, dealing with asymmetric regional shocks is most effective on the aggregate, not on the regional level itself (Bayoumi & Masson 1998; Von Hagen 2007). When the euro was conceived in the early 1990s, it sparked a wave of literature on how such a stabilization scheme could look like (e.g. Italianer & Pisani-Ferry 1992; Italianer & Vanheukelen 1993; Goodhart & Smith 1993; Von Hagen & Hammond 1998). The need for some form of stabilization at the European level was academic consensus and was featured in both the Delors report and the "One Market, One Money" report by the Commission that led up to the creation of the euro. Nevertheless, EMU started without any such scheme in place.

The initial alternative plan that discretionary economic policy coordination under the Broad Economic Guidelines would substitute for the lack of euro area-wide automatic stabilizers did not show the hoped effects. During the first 13 years of EMU, persisting inflation differentials led to substantial current account deficits in some member states while low real interest rates fed asset bubbles in the very same countries. Adjustment channels did not work as properly as they were expected (De Haan 2010; Enderlein *et al.* 2012; Wolff 2012; Bara *et al.* 2012). This brought the question of macroeconomic stabilization back into academic discussions (Dullien & Schwarzer 2009).

However, it was only in recent months that policy makers took up the issue and reopened the debate about a eurozone-wide shock absorption mechanism. The report of the four Presidents of 5 December 2012 called for further research on how such a scheme could look like and outlined certain conditions to be met. The proposal presented here looks compatible to those conditions.

BOX 1 – Proposals for a eurozone shock absorption mechanism, according to the report of the four Presidents

It argued the scheme:

- (i) should not lead to unidirectional or permanent transfers;
- (ii) should not undermine incentives for structural reforms;
- (iii) should be implementable within the framework and the institutions of the Union;
- (iv) should not be an additional crisis-solution mechanism, but rather complement the ESM;
- and (v) should not lead to an overall increase in tax and expenditure levels.

---

2. The output gap as a measure of the business cycle position

The objective of this proposal is to mitigate feedback loops caused by the lack of convergence in business cycles. The goal is not to correct differences in performance that derive from structural shortcomings of an economy. The model thus is not geared towards establishing long-term flows from richer to poorer member states. As all

economies periodically experience up- and downturns, mitigating cyclical differentials should not result in one-way transfers, while alleviating structural problems most certainly would. Hence, a key challenge is to precisely assess a country's business cycle position and to distinguish structural from cyclical effects.

"MITIGATE FEEDBACK LOOPS CAUSED BY THE LACK OF CONVERGENCE IN BUSINESS CYCLES"

The Commission regularly calculates business cycle positions of member states as the difference between the observed actual output of the economy and its calculated potential output – the output gap. The Commission employs two methods to calculate potential output: a Hodrick-Prescott filter that bases forecasts of future potential output on past developments; and a production function (PF) approach, where potential output is calculated using a Cobb-Douglas function based on current factor endowments.

For our model, we choose the PF method for two reasons: first, as the PF method is for a good part based on present endowments and not just a backward-looking measure, it is the better real-time forecaster than the HP filter. Second, the Ecofin Council decided in 2002 to use the PF method as the reference method for all EU official calculations of potential output, signalling that it enjoys more political support than the HP filter.

Although it is true that potential output is a synthetic indicator that is relatively sensitive to the exact way it is calculated, our proposal to make it the legal basis of a stabilization scheme is not at all new to European and national legislations: both Regulations that together form the updated version of the Stability and Growth Pact ((EC)1466/97 and (EC)1467/97) make explicit use of potential growth, and Regulation 1466/97 even broadly defines how potential growth should be calculated[1]. The new Fiscal Compact builds its definition of 'structural deficit' explicitly on the provisions of these Regulations, and hence will soon lead to a domestic application of this approach throughout the Union.

In this context it is relevant to note that the German "debt brake", as set out in article 115 of the Basic Law, explicitly states that "economic developments [that] deviate from normal conditions" should be taken into account, and the implementing act related to this article specifies that "a production function of the type Cobb Douglas"[2] should be used to calculate 'normal conditions'. Therefore, we feel comfortable at this point to propose a scheme using output gaps calculated based on a Cobb-Douglas production function. That does not mean that we rule out other possible indicators for the business cycle position such as short-term unemployment or inflation rates. However, further research would be needed here as our calculations so far show only weak correlations between inflation rates and calculated output gaps, and short-term unemployment is a problematic indicator as long as labour market institutions are in the realm of national legislation.

3. The Cyclical Adjustment Insurance Fund: technical features

The underlying idea of the Fund is to attempt to reduce the difference between individual member states' business cycle position and that of the eurozone as a whole. It therefore mitigates the amplitude of individual business cycles vis-à-vis the eurozone aggregate by channelling funds from those countries running above average to those running below it.

"CHANNELLING FUNDS FROM THOSE COUNTRIES RUNNING ABOVE AVERAGE TO THOSE RUNNING BELOW IT"

1. Council Regulation (EC)1466/97, article 5: "The reference medium-term rate of potential GDP growth shall be determined on the basis of forward-looking projections and backward-looking estimates. Projections shall be updated at regular intervals. The Commission shall make public the calculation method for those projections and the resulting reference medium-term rate of potential GDP growth."
2. §2(2), Verordnung über das Verfahren zur Bestimmung der Konjunkturkomponente nach § 5 des Artikel 115-Gesetzes.

BOX 2 – Calculating the country's individual annual transfers)

A country's individual annual transfers are calculated by the formula

$$T_i = a * [(y_{EZ} - y^*_{EZ}) / y^*_{EZ} - (y_i - y^*_i) / y^*_i) * y^*_i$$

where y denotes actual and y^* denotes potential output. a denotes the share of the difference between individual and eurozone output gap to be offset, the convergence indicator. Our simulation shows that the reduction in the variance of individual output gaps around the eurozone average is a direct function of a. In our baseline scenario, we set $a = 0.5$, which results in an average variance reduction of 39.4%. A positive T_i translates into a country receiving funds from the Fund, a negative T_i into a country paying into the Fund.

By definition and absent rounding errors, the budget of the Fund is balanced every year as the eurozone output gap is the average of individual output gaps weighted by shares of absolute potential output.

Over the long run, absent measurement errors, one should expect all countries to come close to a net-zero position. Indeed, if we look at the results of our simulation, we see that after 14 years a large majority of member states come close to net-zero (See Annex 1).

One could argue that deviations should only be offset above a certain threshold to avoid payments within the margin of error that could potentially have the wrong sign or to have countries deal with small deviations by themselves. However, this would endanger the balanced budget of the scheme. Therefore, we propose to allow for small 'misguided' payments in order to avoid deficits of the scheme, especially since we can assume that they will cancel each other out over time.

> "ONE SHOULD EXPECT ALL COUNTRIES TO COME CLOSE TO A NET-ZERO POSITION"

Both an effective timing of payments and a thorough administration of the Fund play an important role in its successful implementation. Although we make certain assumptions about timing in our simulation, we think further research is needed to determine the ideal payment schedule and the best way to implement the Fund administratively.

4. The Cyclical Adjustment Insurance Fund: simulated effects 1999-2014

To test our proposal, we simulate transfers that would have occurred had the Fund been implemented right from the inception of the euro in 1999. We assume that countries would have joined the Fund only when they also joined the euro.

We use the Commission's AMECO database and base our simulation on output gaps as provided in its fall 2012 forecast version, including forecasts for 2012-2014. This raises the immediate question how the scheme would have performed had we used real-time data that policy-makers had at hand in the given years – especially since output gaps are relatively sensitive to ex-post adjustments. However, note that what we are showing here is that our concept is viable from an *analytical* standpoint. It is almost impossible and becomes highly speculative to show this using real-time data due to the number of assumptions one would have to make in this case. Therefore, we limit ourselves to one data set.

We are aware that here, implementation, as with every economic policy, is a challenge in and of itself. Nevertheless, two factors give us confidence that a scheme based on output gaps would work even if based on real-time data:

- First, the quality of forecasts has substantially increased in the last decade and we can hope for further methodological improvement once the output gap is widely used as a policy tool.
- Second, primitive robustness checks using the available real-time data show us that the qualitative statements made below would not have to be altered – slightly inaccurate smoothing seems still to be substantially better than no smoothing at all.

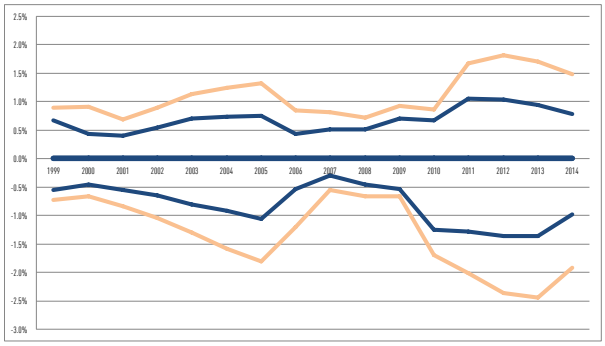
BOX 3 – The fiscal multiplier: calculation hypotheses

In line with recent findings on fiscal multipliers (e.g. IMF 2012), we assume a basic multiplier of slightly above 1. As offsetting the differences between eurozone average and individual outputs will also inhibit the effect of feedback loops created by the "one size fits all" monetary policy, we assume that the true multiplier will be around 1.2, with an effect of 0.8 in the first year after the moment of payment and an effect of 0.4 in the year after. Combined with our assumed payment schedule[3], this yields an effective multiplier of 0.5 in year *t* (the year for which the payment is calculated and performed), of 0.55 in year *t+1*, and of 0.15 in year *t+2*. Our qualitative findings are generally robust to small quantitative changes in the multiplier. It should be noted that for the calculation of transfers in *t+1*, the effects of the transfers in *t* are taken into account. Also, multipliers usually differ depending on the condition of an economy, with multipliers increasing the worse a country is faring (*Ibid.*). We do not take into account this asymmetric effect yet, but will do so in a more comprehensive version of this Policy Paper.
We set $a = 0.5$.

Key Findings

Our scheme leads to a substantial smoothing of business cycle position differences across member states. The average standard deviation relative to the eurozone average decreases by 39.4%, with the amount of net flows averaging at 0.195% of eurozone GDP, or less than a fifth of the annual EU budget. As one can see in the graph below, smoothing effects are the strongest in years when differences are the most pronounced.

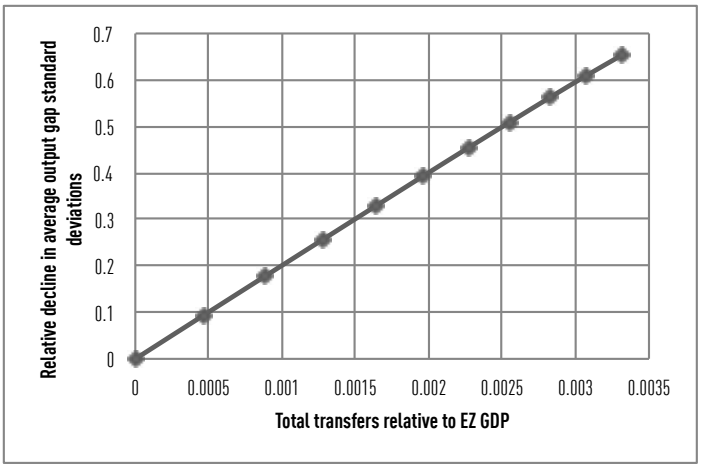
Standard deviations relative to eurozone (EZ) output gap pre- and post-transfers



"OUR SCHEME LEADS TO A SUBSTANTIAL SMOOTHING OF BUSINESS CYCLE POSITION DIFFERENCES ACROSS MEMBER STATES"

The reduction in the standard deviation as well as the amount of net flows are a direct function of the policy variable *a*. The table below indicates how different levels of *a* affect average standard deviations and provides an estimate of possible costs.

a	RELATIVE DECLINE IN AVERAGE STANDARD DEVIATIONS	NET FLOWS AS % OF EZ GDP
0.0	0.0%	0.000%
0.1	9.4%	0.047%
0.2	17.9%	0.089%
0.3	25.7%	0.128%
0.4	32.8%	0.164%
0.5	39.4%	0.196%
0.6	45.4%	0.227%
0.7	51.0%	0.255%
0.8	56.2%	0.282%
0.9	61.0%	0.308%
1.0	65.5%	0.333%



3. We assume that 50% of transfers can be paid out at the beginning of year *t*, 25% six months into *t*, and the last 25% at the end of *t*.

The overwhelming majority of individual annual payments represent below 1% of a members state's GDP in the given year. Outliers are countries transitioning into the euro at an undervalued exchange rate, which usually find themselves with outflowing transfers between 1 and 2% of GDP in the first two or three years of membership, and Greece in the last three years which would have seen a strong inflow of payments around 4% of its GDP due to its deep recession.

As one can see in the detailed tables on individual transfers in Annex 1, none of the 11 founding members of the euro would have had a net position worse or better than 0.25% of its total GDP over the period 1999-2014, nine countries are within a 0.2% band, which comes close to a net-zero position. Germany with 0.01% of total GDP almost perfectly hits the net-zero. Greece is a special case due to the depth of its current recession; the five other "newcomers" have not been sufficiently long in the euro to make a statement on their long-term net position. Even France, whose overall net payments into the system of about 52 billion euros seem high in absolute terms, would not have paid more than 0.19% of its total GDP into the Fund. One also has to keep in mind that 2014 is an arbitrary cutoff, and it is by definition highly unlikely that all countries achieve net-zero at the same moment in time.

BOX 4 – A balanced scheme for Germany

Germany is an excellent illustration of the proposal:

- The Fund would have helped and supported German structural reforms early in the last decade, with payments from the Fund to Germany in the years 2003-2005 amounting to 12.16, 15.2 and 18.83 billion euros respectively..
- In turn, Germany would support those countries in worse conditions during 2012 and 2013 with similar payments of 18.44 and 15.61 billion euros respectively.
- The overall net balance of Germany between 1999 and 2014 would have been balanced at 0.01% of GDP, with peaks of transfers reaching around 0.8% in both directions.

Conclusion and open issues

We show how a Cyclical Adjustment Insurance Fund (CAIF) based on output gap differences would have affected the volatility of member states' output gaps relative to the eurozone's output gap in the period 1999-2014. A scheme with average net flows substantially smaller than a fifth of the EU budget or about 0.2% of eurozone GDP would have led to reduction in the standard deviation of individual output gaps relative to the eurozone average of as much as 39.4%, substantially alleviating the procyclicality of the ECB's "one size fits all" monetary policy. Furthermore, all founding members of the euro would have ended up in a net position within a range of 0.25% of their GDP, nine of them even within a 0.2%-band, which comes close to a net-zero position.

Further research will be necessary to refine such calculations taking into account asymmetric multiplier effects. Furthermore, one could widen the scope of research to alternative indicators for business cycle positions such as inflation rates and short-term (cyclical) unemployment, with the possibility of building composite indicators that use different sources to provide information about a country's business cycle position. Also, this Policy Paper hasn't touched upon possible administrative arrangements to implement the CAIF within the wider landscape of eurozone governance.

"THERE IS AN ANALYTICALLY STRAIGHTFORWARD WAY TO BUILD A SHOCK ABSORPTION CAPACITY FOR THE EUROZONE ON THE BASIS OF OUTPUT GAPS"

But overall, the main lesson from this Policy Paper is that there is an analytically straightforward way to build a shock absorption capacity for the eurozone on the basis of output gaps. The results are extremely promising.

Annex 1: Data

Transfers (bn 2005 euros)

	BE	DE	IE	EL	ES	FR	IT	LU	NL	AT	PT	FI	CY	EE	MT	SI	SK	EZ	TOTAL PAID/ RECEIVED
1999	-0.15	8.78	-1.58	–	-2.22	-3.42	3.37	-0.20	-1.99	-0.31	-1.67	-0.61	–	–	–	–	–	–	12.15
2000	0.16	7.13	-1.49	–	-1.05	-3.67	-0.07	-0.35	-0.03	0.33	-0.65	-0.30	–	–	–	–	–	–	7.62
2001	1.72	3.95	-0.19	1.49	-1.78	-5.11	-2.93	-0.03	1.18	1.62	-0.49	0.56	–	–	–	–	–	–	10.52
2002	0.58	7.67	-0.64	1.29	-2.21	-7.25	-3.41	-0.19	3.45	0.57	-0.42	0.56	–	–	–	–	–	–	14.11
2003	0.41	12.16	-0.27	-0.69	-4.79	-9.31	-3.12	0.06	3.79	0.93	0.43	0.40	–	–	–	–	–	–	18.18
2004	-1.17	15.20	0.42	-0.33	-2.28	-11.93	-4.14	0.04	3.07	0.90	0.41	-0.20	–	–	–	–	–	–	20.04
2005	-0.71	18.83	-0.52	0.32	-4.10	-11.36	-5.41	-0.10	2.14	0.64	0.46	-0.19	–	–	–	–	–	–	22.39
2006	0.21	7.49	0.02	-1.08	-0.81	-4.77	-4.74	-0.04	2.25	0.68	1.34	-0.56	–	–	–	–	–	–	12.00
2007	0.27	2.26	-0.84	-0.57	3.01	-0.83	-1.67	-0.33	0.11	0.16	0.94	-1.91	–	–	–	-0.59	–	–	6.74
2008	-0.36	-5.88	1.36	0.19	4.67	2.38	0.93	0.11	-1.95	-0.68	1.00	-1.06	-0.15	–	0.01	-0.59	–	–	10.65
2009	-2.08	7.11	0.25	-1.98	2.14	-6.68	2.12	0.05	-1.62	-0.75	-0.67	2.51	-0.23	–	-0.03	0.22	-0.37	–	14.41
2010	-1.46	-14.55	1.72	3.81	11.90	1.83	-2.09	-0.08	-0.11	-0.48	-0.37	0.45	-0.09	–	-0.04	0.05	-0.47	–	19.75
2011	-1.60	-18.76	0.58	7.56	9.65	0.91	2.20	-0.02	1.05	-1.74	1.05	-0.31	-0.05	-0.13	-0.04	-0.04	-0.32	–	23.00
2012	-1.17	-18.44	-0.94	8.04	7.69	0.02	5.69	-0.07	0.76	-1.97	1.28	-0.20	-0.00	-0.17	-0.05	0.14	-0.61	–	23.61
2013	-1.61	-15.61	-1.64	8.26	7.20	1.54	3.25	-0.11	0.86	-1.89	0.89	-0.69	-0.03	-0.18	-0.06	0.21	-0.39	–	22.19
2014	-1.28	-12.48	-1.86	5.89	1.23	5.69	3.05	-0.05	1.49	-1.87	0.81	-0.41	-0.01	-0.15	-0.04	0.13	-0.15	–	18.29
Total	-8.23	4.87	-5.62	32.20	28.25	-51.95	-6.96	-1.31	14.46	-3.86	4.34	-1.96	-0.55	-0.63	-0.25	-0.47	-2.32	–	255.67

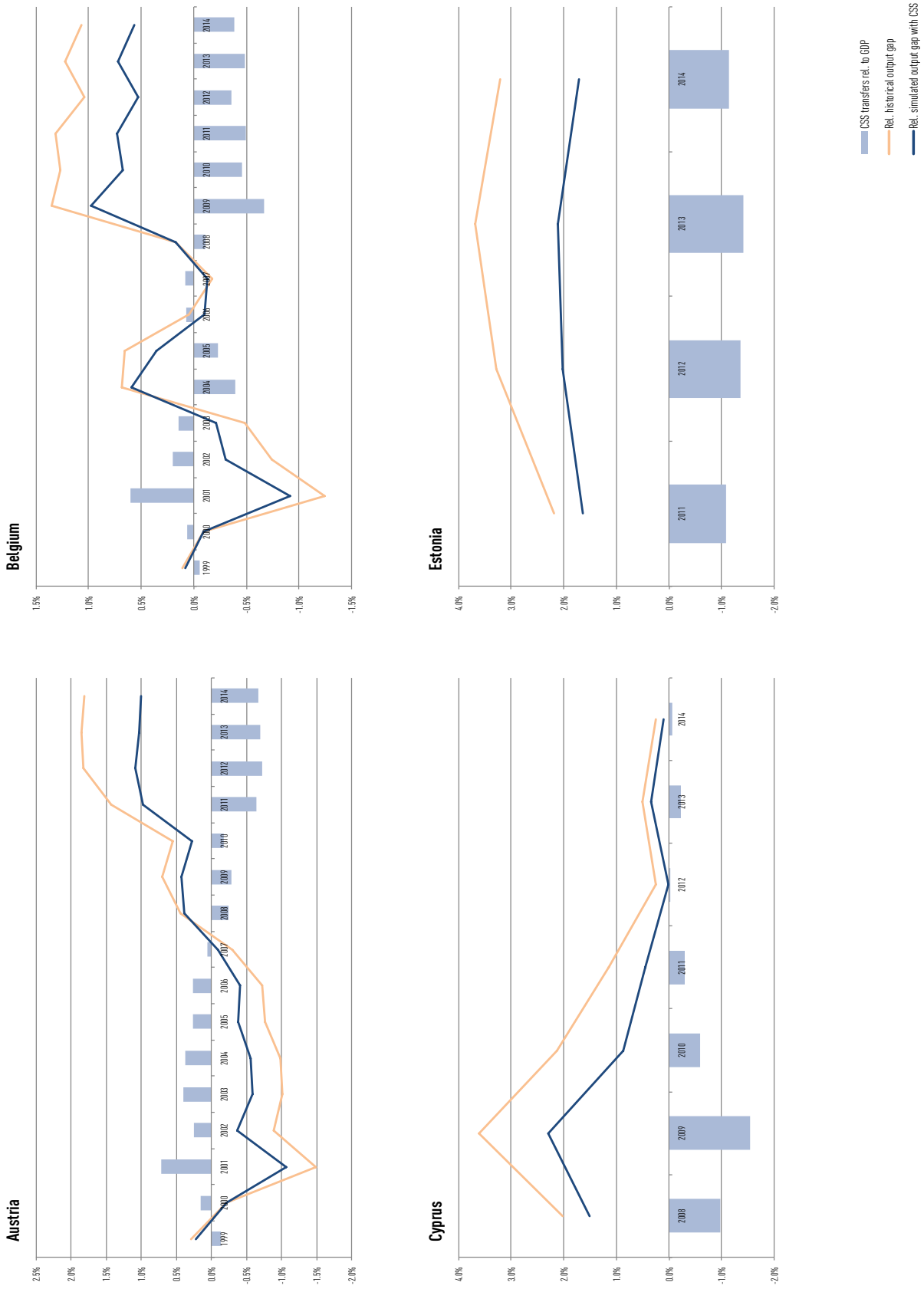
Transfers (relative to actual GDP)

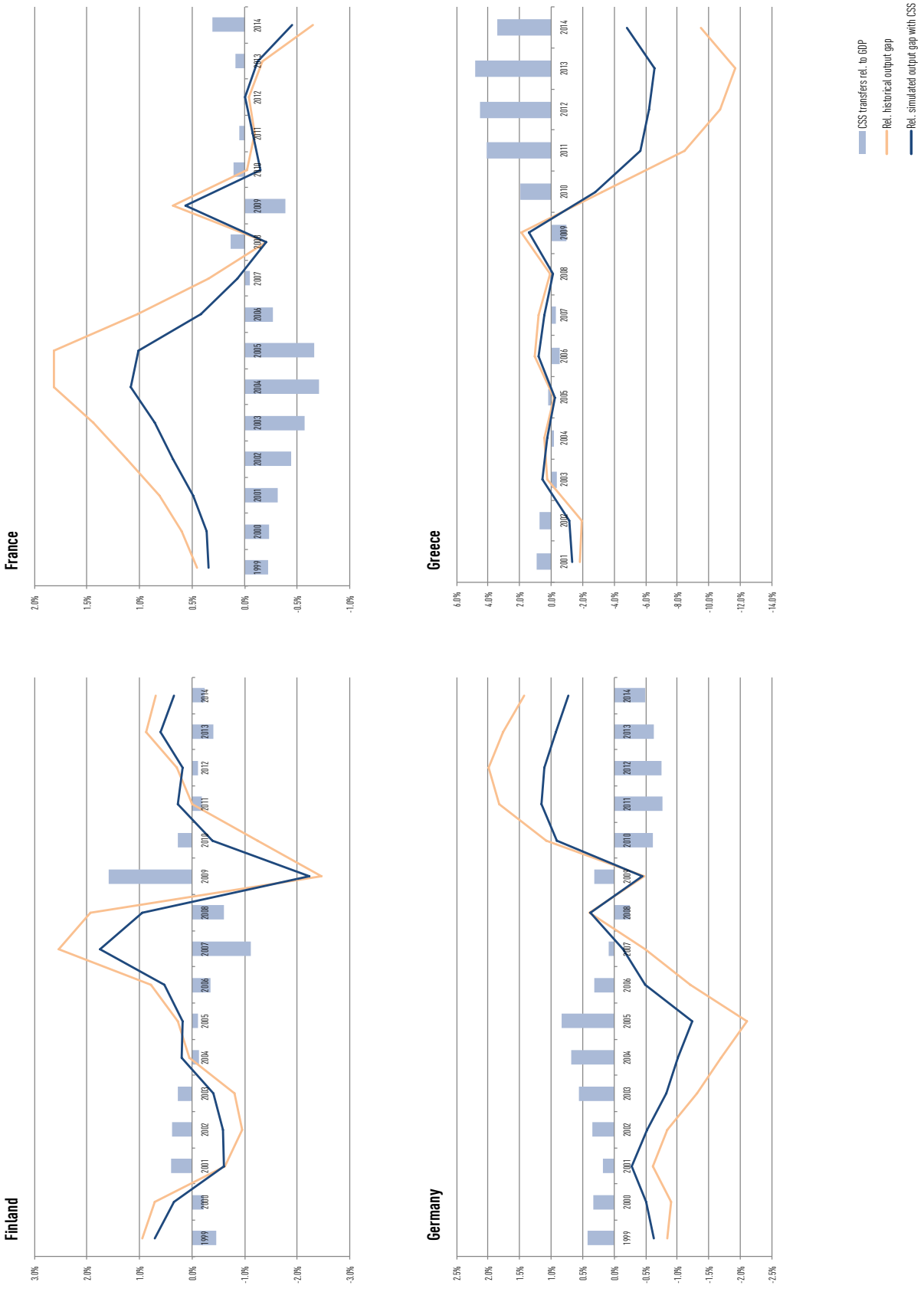
	BE	DE	IE	EL	ES	FR	IT	LU	NL	AT	PT	FI	CY	EE	MT	SI	SK	EZ	TOTAL PAID/ RECEIVED (REL. TO ACT. EZ GDP)
1999	–0.05%	0.42%	– 1.38%	–	– 0.30%	– 0.22%	0.26%	– 0.84%	– 0.43%	– 0.14%	– 1.18%	– 0.47%	–	–	–	–	–	–	0.172%
2000	0.06%	0.33%	– 1.18%	–	– 0.14%	– 0.23%	– 0.01%	– 1.39%	– 0.01%	0.15%	– 0.44%	– 0.22%	–	–	–	–	–	–	0.104%
2001	0.61%	0.18%	– 0.14%	0.90%	– 0.22%	– 0.32%	– 0.21%	– 0.12%	0.24%	0.71%	– 0.32%	0.40%	–	–	–	–	–	–	0.138%
2002	0.20%	0.35%	– 0.45%	0.75%	– 0.27%	– 0.45%	– 0.24%	– 0.71%	0.70%	0.24%	– 0.28%	0.39%	–	–	–	–	–	–	0.183%
2003	0.14%	0.55%	– 0.19%	– 0.38%	– 0.57%	– 0.57%	– 0.22%	0.21%	0.76%	0.40%	0.29%	0.27%	–	–	–	–	–	–	0.235%
2004	– 0.39%	0.68%	0.27%	– 0.17%	– 0.26%	– 0.71%	– 0.29%	0.15%	0.61%	0.38%	0.26%	– 0.13%	–	–	–	–	–	–	0.253%
2005	– 0.23%	0.84%	– 0.32%	0.17%	– 0.45%	– 0.67%	– 0.38%	– 0.34%	0.41%	0.26%	0.30%	– 0.12%	–	–	–	–	–	–	0.278%
2006	0.07%	0.32%	0.01%	– 0.53%	– 0.09%	– 0.27%	– 0.32%	– 0.13%	0.42%	0.27%	0.85%	– 0.34%	–	–	–	–	–	–	0.144%
2007	0.08%	0.09%	– 0.47%	– 0.27%	0.31%	– 0.05%	– 0.11%	– 0.98%	0.02%	0.06%	0.58%	– 1.11%	–	–	–	– 1.82%	–	–	0.079%
2008	– 0.11%	– 0.24%	0.77%	0.09%	0.47%	0.13%	0.06%	0.32%	– 0.35%	– 0.25%	0.62%	– 0.61%	– 0.98%	–	0.13%	– 1.80%	–	–	0.123%
2009	– 0.67%	0.31%	0.15%	– 0.97%	0.22%	– 0.38%	0.15%	0.16%	– 0.30%	– 0.29%	– 0.43%	1.58%	– 1.55%	–	– 0.64%	0.70%	– 0.62%	–	0.173%
2010	– 0.46%	– 0.61%	1.02%	1.96%	1.25%	0.10%	– 0.15%	– 0.25%	– 0.02%	– 0.18%	– 0.24%	0.27%	– 0.58%	–	– 0.79%	0.16%	– 0.76%	–	0.233%
2011	– 0.49%	– 0.77%	0.34%	4.08%	1.00%	0.05%	0.15%	– 0.05%	0.19%	– 0.65%	0.68%	– 0.18%	– 0.31%	– 1.09%	– 0.64%	– 0.11%	– 0.51%	–	0.267%
2012	– 0.36%	– 0.75%	– 0.55%	4.52%	0.81%	0.00%	0.41%	– 0.21%	0.14%	– 0.73%	0.85%	– 0.12%	0.00%	– 1.35%	– 0.86%	0.46%	– 0.94%	–	0.275%
2013	– 0.49%	– 0.63%	– 0.96%	4.81%	0.77%	0.08%	0.23%	– 0.32%	0.15%	– 0.69%	0.59%	– 0.40%	– 0.23%	– 1.41%	– 1.01%	0.68%	– 0.59%	–	0.258%
2014	– 0.38%	– 0.49%	– 1.08%	3.43%	0.13%	0.31%	0.22%	– 0.13%	0.26%	– 0.67%	0.54%	– 0.24%	– 0.06%	– 1.14%	– 0.70%	0.42%	– 0.22%	–	0.210%
Total	– 0.17%	0.01%	– 0.22%	1.22%	0.20%	– 0.19%	– 0.03%	– 0.27%	0.17%	– 0.10%	0.18%	– 0.08%	– 0.53%	– 1.25%	– 0.65%	– 0.19%	– 0.60%	–	0.196%

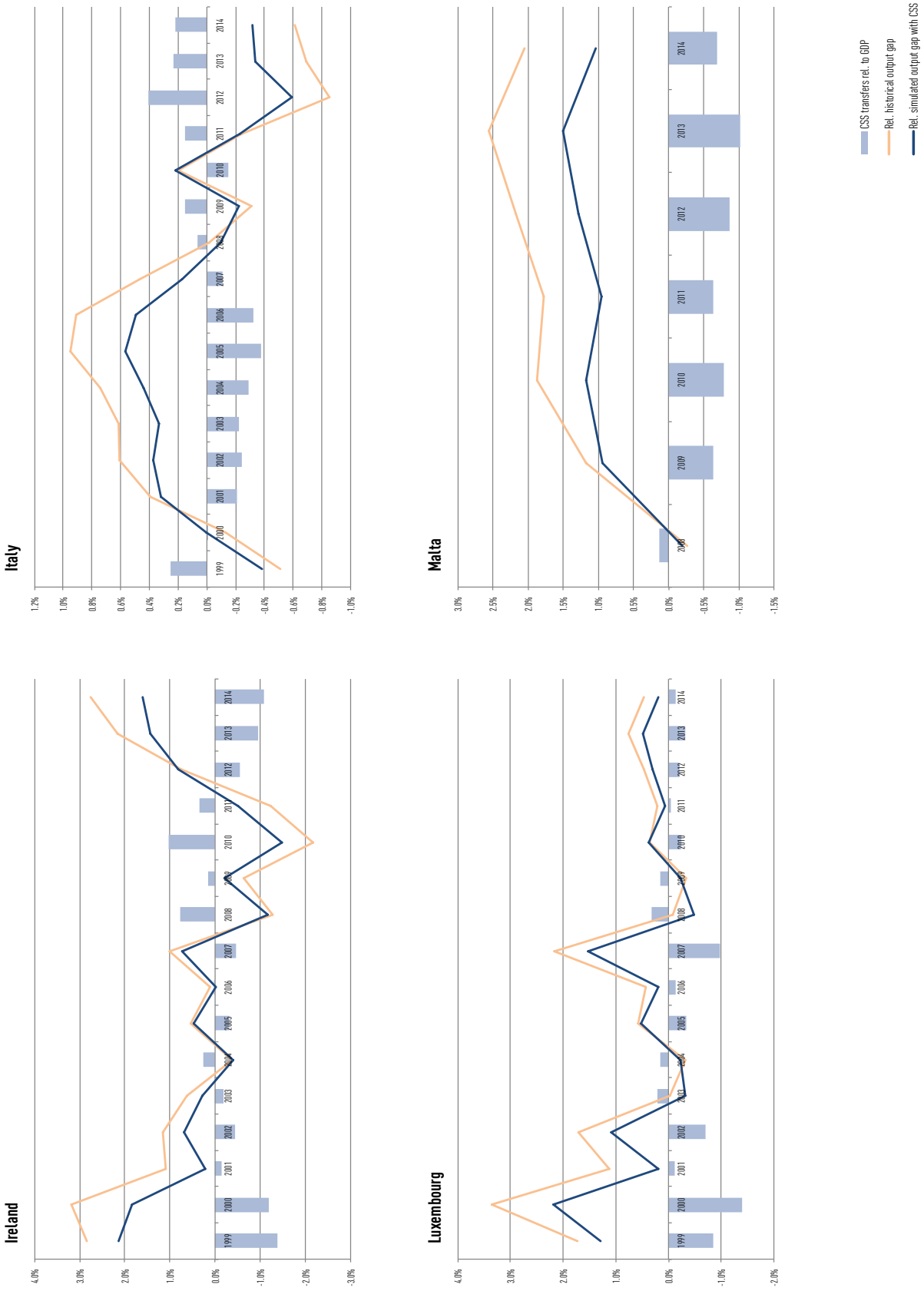
Effect of proposed stabilization scheme on output gaps over time

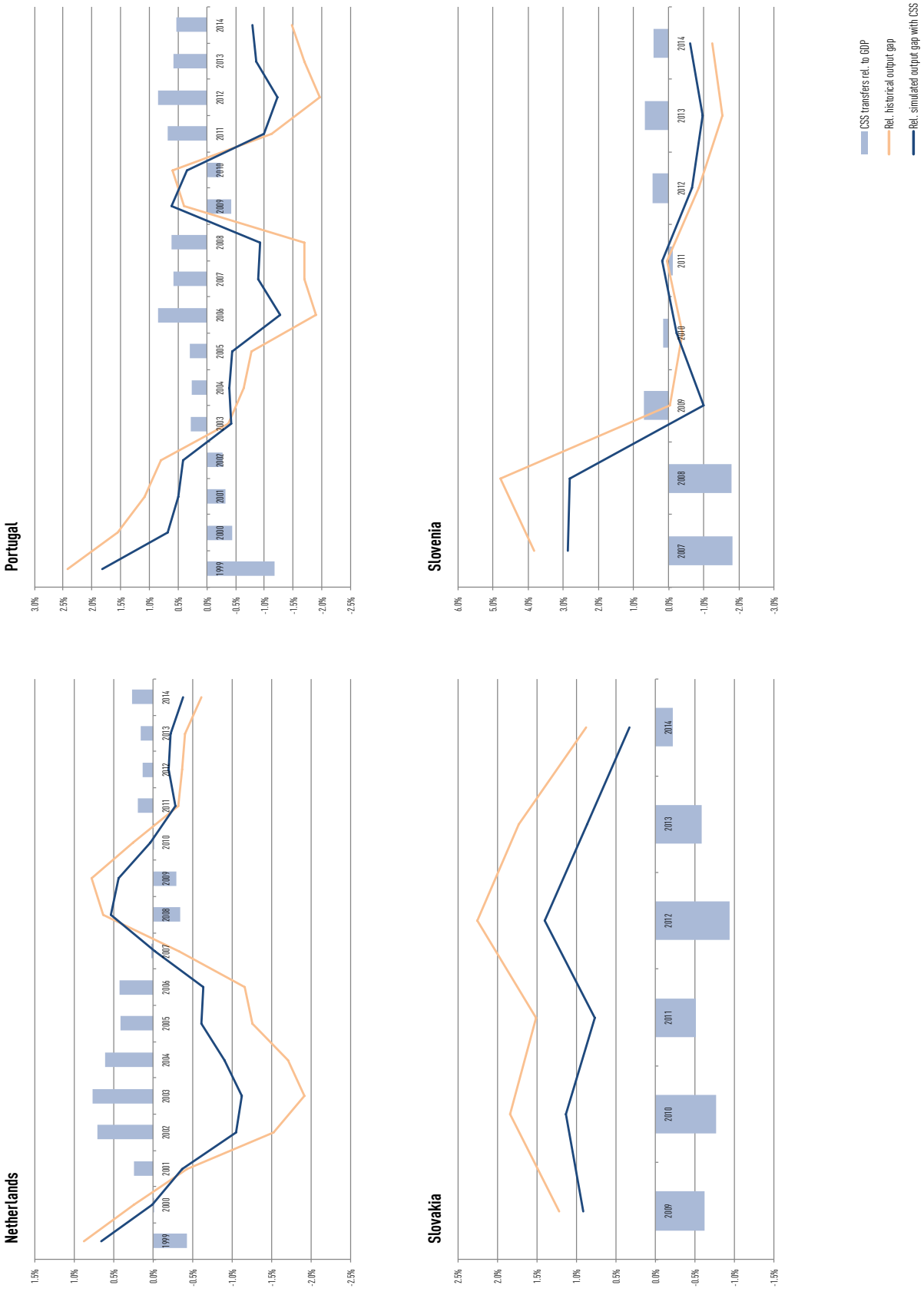
	OUTPUT GAP STANDARD DEVIATION FROM EUROZONE AVERAGE (PERCENTAGE POINTS)		RELATIVE CHANGE IN OUTPUT GAP STANDARD DEVIATION	TOTAL PAID/RECEIVED (REL. TO ACT. EZ GDP IN YEAR)
	ABSENT OF INTERVENTION (HISTORIC DATA/CURRENT FORECAST)	SIMULATED RESULTS FOR THE PROPOSED STABILIZATION SCHEME		
1999	0.816%	0.612%	– 25.0%	0.172%
2000	0.782%	0.441%	– 43.7%	0.104%
2001	0.756%	0.481%	– 36.5%	0.138%
2002	0.966%	0.590%	– 38.9%	0.183%
2003	1.216%	0.746%	– 38.7%	0.235%
2004	1.394%	0.819%	– 41.2%	0.253%
2005	1.550%	0.897%	– 42.1%	0.278%
2006	1.002%	0.482%	– 51.8%	0.144%
2007	0.679%	0.409%	– 39.7%	0.079%
2008	0.694%	0.478%	– 31.2%	0.123%
2009	0.781%	0.607%	– 22.2%	0.173%
2010	1.257%	0.935%	– 25.6%	0.233%
2011	1.891%	1.201%	– 36.5%	0.267%
2012	2.157%	1.236%	– 42.7%	0.275%
2013	2.177%	1.207%	– 44.5%	0.258%
2014	1.753%	0.906%	– 48.3%	0.210%
Average over period (unweighted)	1.242%	0.753%	– 39.4% (change in averages)	0.195% (unweighted average)

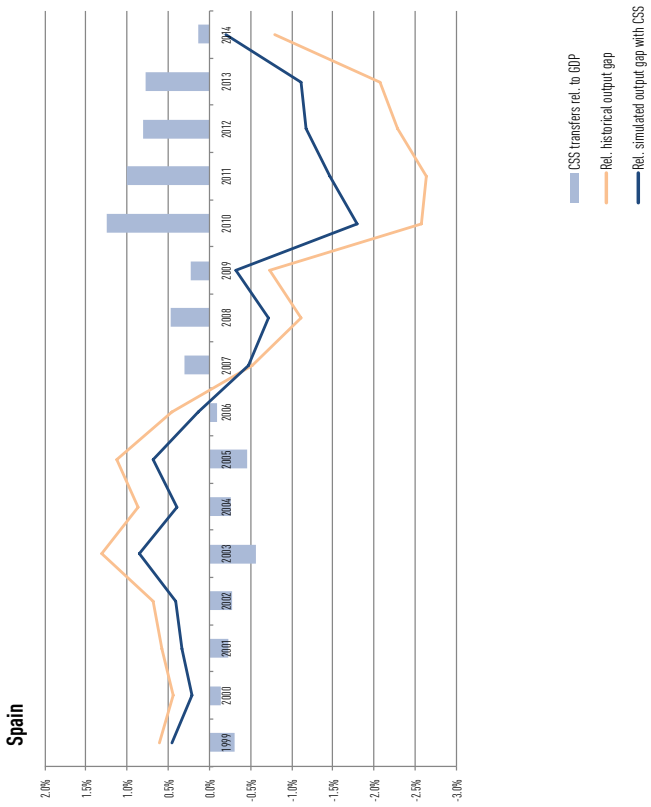
Annex 2: Country-specific smoothing (CSS) effects and payments




France
Greece
Finland
Germany
CSS transfers rel. to GDP
Rel. historical output gap
Rel. simulated output gap with CSS


Italy
Malta
Ireland
Luxembourg
CSS transfers rel. to GDP
Rel. historical output gap
Rel. simulated output gap with CSS


Portugal
Slovenia
Netherlands
Slovakia
CSS transfers rel. to GDP
Rel. historical output gap
Rel. simulated output gap with CSS


Spain
2.0%
1.5%
1.0%
0.5%
0.0%
-0.5%
-1.0%
-1.5%
-2.0%
-2.5%
-3.0%
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
CSSS transfers rel. to GDP
Rel. historical output gap
Rel. simulated output gap with CSSS

BIBLIOGRAPHY

Bara, Y. *et al.* (2012): *Ending the Euro Area Crisis*. G-MonD Policy Papers no. 1.

Bayoumi, T. and P. Masson (1998): 'Liability-Creating versus Non-Liability-Creating Fiscal Stabilization Policies: Ricardian Equivalence, Fiscal Stabilization, and EMU.' *Economic Journal*, 108 (449), pp. 1026-1045.

De Haan, J. (2010): 'Inflation Differentials in the Euro Area: A Survey.' In De Haan, J. and H. Berger: *The European Central Bank at Ten*. Heidelberg: Springer, pp. 11-32.

Dullien, S. (2007): *Improving Economic Stability in Europe*. SWP Working Paper.

Dullien, S. and D. Schwarzer (2009): 'Bringing Macroeconomics into the EU Budget Debate: Why and How?' *Journal of Common Market Studies*, 47 (1), pp. 153-174.

Enderlein, H. *et al.* (2012): *Completing the Euro – A road map towards fiscal union in Europe*. Notre Europe, Study No. 92.

Goodhart, C. and S. Smith (1993): 'Stabilization.' *European Economy – Reports and Studies*, 5, pp. 417-455.

IMF (2012): 'Balancing Fiscal Policy Risks.' *Fiscal Monitor*, April 2012.

Italianer, A. and J. Pisani-Ferry (1992): 'Systèmes budgétaires et amortissement des chocs régionaux : implications pour l'Union économique et monétaire.' *Economie Prospective Internationale*, 51 (3), pp. 49-69.

Italianer, A. and M. Vanheukelen (1993): 'Proposals for Community Stabilization Mechanisms. Some Historical Applications.' *European Economy – Reports and Studies*, 5, pp. 493-510.

MacDougall, D. *et al.* (1977): *Report of the Study Group on the Role of Public Finance in European Integration*. Brussels: Commission of the European Communities.

Mundell, R. (1961): 'A Theory of Optimum Currency Areas.' *The American Economic Review*, 51 (4), pp. 657-665.

Von Hagen, J. (2007): 'Achieving Economic Stabilization by Sharing Risk within Countries.' In R. Boadway and A. Shah (eds.): *Intergovernmental Fiscal Transfers*. Washington, DC: World Bank.

Von Hagen, J. and G. Hammond (1998): 'Regional Insurance against Asymmetric Shocks: An Empirical Study for the European Community.' *The Manchester School*, 66 (3), pp. 331-353.

Wolff, G. (2012): *A Budget for Europe's Monetary Union*. Bruegel Policy Contribution 22/2012.

On the same theme...

WHAT BALANCE BETWEEN AUSTERITY AND GROWTH IN THE EURO ZONE?
Sofia Fernandes, *Synthesis, Notre Europe – Jacques Delors Institute*, December 2012

REFORM PROPOSALS FOR THE EURO ZONE
Jacques Delors, Henrik Enderlein, *Tribune, Notre Europe – Jacques Delors Institute*, December 2012

A NEW PATH FOR GROWTH AND SOLIDARITY
Anna Diamantopoulou, *Tribune, Notre Europe – Jacques Delors Institute*, December 2012

EMU: BOTH REINFORCED AND DISPLAYING SOLIDARITY
António Vitorino, *Tribune, Notre Europe – Jacques Delors Institute*, December 2012

COMPLETING THE EURO: A ROAD MAP TOWARDS FISCAL UNION IN EUROPE
Tommaso Padoa-Schioppa Group, Foreword by Jacques Delors and Helmut Schmidt, *Studies and Reports No. 92, Notre Europe – Jacques Delors Institute,* June 2012.

Managing Editor: Yves Bertoncini • The document may be reproduced in part or in full on the dual condition that its meaning is not distorted and that the source is mentioned • The views expressed are those of the author(s) and do not necessarily reflect those of the publisher • *Notre Europe - Jacques Delors Institute* cannot be held responsible for the use which any third party may make of the document • Original version • © *Notre Europe - Jacques Delors Institute*

Europe for Citizens Programme

info@notre-europe.eu
19 rue de Milan
75009 Paris - France
www.notre-europe.eu