

Loewald, Christopher; Wörgötter, Andreas

**Working Paper**

## Do monetary unions dream of structural reforms?

ECON WPS, No. 01/2019

**Provided in Cooperation with:**

TU Wien, Institute of Statistics and Mathematical Methods in Economics, Economics Research Unit (ECON)

*Suggested Citation:* Loewald, Christopher; Wörgötter, Andreas (2019) : Do monetary unions dream of structural reforms?, ECON WPS, No. 01/2019, Vienna University of Technology, Institute of Statistics and Mathematical Methods in Economics, Research Group Economics, Vienna

This Version is available at:

<https://hdl.handle.net/10419/195067>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# Do monetary unions dream of structural reforms?



by  
**Christopher Loewald**  
and **Andreas Wörgötter**

# Do monetary unions dream of structural reforms?

A macro-structural policy framework for a monetary union which is not an optimal currency area

By Christopher Loewald and Andreas Wörgötter<sup>1</sup>

**Abstract:** When the principal decisions for the European Monetary Union (EMU) were made it was acknowledged that it would not be an optimal currency area (OCA). Potential trouble was assumed away as asymmetric shocks were expected to fade, while rising productivity enhanced the resilience of EMU member economies. We argue however that for less export-focused member countries the loss of the exchange rate mechanism has become an especially debilitating constraint limiting recovery from recessions. The common monetary policy helps to absorb some financial shocks but cannot address structural issues in financial, product or labour markets. Fiscal policy too is constrained. It has little positive short-run impact on competitiveness and works as a shock absorber only if fiscal balances are sustainable. Without nominal exchange rate adjustments, only internal devaluation corrects an overvalued real exchange rate, either through wage restraint or productivity increases. Co-ordinated sets of prioritised structural policies could push the real exchange rate in the right direction and generate cross-border synergies, reducing short run costs. For example, Germany should lower its value added tax (VAT) to provide room for more imports, while Italy and other deficit economies could strengthen work incentives to reduce labour shortages in the export sector.

Do monetary unions dream of structural reforms? .....	1
Introduction: competing narratives.....	2
National discretion and monetary union: A fundamental contradiction? .....	4
Is Germany the problem? .....	11
Monetary policy and adjustment to the crisis .....	16
Fiscal policy of sovereigns and fiscal policy of the Eurozone? .....	20
Structural reform as a national complement to fiscal policy .....	22
The German model: sustainability and resilience through structural stability .....	25
What should German structural reform look like?.....	26
Conclusions: adapting national policy to support European integration.....	27
References .....	31
Appendix .....	35
A model for different adjustments to foreign and domestic shocks (Dornbusch, 1983).....	35
Empirical estimates.....	36

---

<sup>1</sup> Christopher Loewald is the Head of Research and Policy Development at the South African Reserve Bank and previously Deputy Director-General for Economic Policy at the South African National Treasury. Andreas Wörgötter is a Lecturer at TU Wien, Institute of Statistics and Mathematical Methods in Economics and was Head of Division at the Economics Department of the OECD, covering South Africa, Russia, Germany and 14 other countries, from 2000 to 2016. Helpful and constructive comments and suggestions are gratefully acknowledged from participants of the OECD ECO Brownbag Seminar and Fritz Breuss, Boris Courneade, Johannes Fedderke, David Fowkes, Franz Hahn, Heinz Handler, Jenny Kilp, Peter Rosner, Jan Strasky, Istvan Szekely, Julia Wörz and Eckhard Wurzel. Theresa Alton provided data and econometric assistance. Remaining errors and omissions are the responsibility of the authors. Content or interpretation of this paper is not necessarily shared by current or past affiliations of the authors.

## Introduction: competing narratives

Despite optimistic expectations ahead of the 1992 European Monetary Integration project, overall economic performance has been disappointing and the global financial and euro crises opened wider the economic development gaps between countries of the Eurozone.

Given that backdrop, it is worth reminding ourselves that empirical assessments of monetary union had concluded that the optimal currency area (OCA) core around Germany was limited to a few economies, and that considerable further convergence would be necessary for other aspirants (Bayoumi and Eichengreen, 1997). This appears to have been borne out in practice. In the absence of much structural convergence, shocks to economic growth resulted in larger macroeconomic imbalances, especially rising public debt stocks and current account deficits, underscoring the inability of some Eurozone members to cope with shocks without being able to resort to devaluations.

In the wake of the euro crisis, this has contributed to considerable scepticism of the policy framework and polarizing narratives about the future of the integration project.<sup>2</sup> One such narrative portrays the Eurozone, bound by fiscal rules and without meaningful emergency powers, as constrained from applying counter-cyclical policies and therefore incapable of resolving the crisis. Another narrative apportions blame for the severity of the crisis on German economic policy itself and its deflationary effects on the broader Eurozone. A third narrative laments southern European policies that build unsustainable debt without growth and favour domestic demand oriented political stability rather than external competitiveness (Regan, 2017). Some authors propose **breaking-up** the Eurozone and restore exchange rate flexibility for those countries (Scharpf, 2018). We think a fresh effort with a comprehensive and coordinated structural policy programme to push real exchange rates towards their equilibrium levels is feasible to secure the sustainability of fiscal balances with less austerity, and to strengthen Eurozone growth performance.

---

<sup>2</sup> Early on issues were raised concerning the European Union not being an optimal currency area, the degree of country specific shocks being larger than in other big currency areas and the absence of meaningful fiscal stabilisers (Eichengreen, 1997). Another argument against the sustainability of the euro referred to the European Union not being a political union (Theurl, 1992).

Each of these narratives resonates, although none tells a fully convincing story about why the euro crisis happened nor why it has been so difficult to exit. The conditions setting up the crisis are longer-term and related to weak productivity<sup>3</sup> growth, while the short path from illiquidity to insolvency, De Grauwe's "devilish" plunge into crisis, had more to do with policies conducted outside Germany than those within (Paul De Grauwe, 2011).

Weak productivity growth and eventually the depth of the 2008/9 crisis had a lot to do with the misallocation of capital, which in the period before the crisis financed real estate, infrastructure and consumption, rather than innovation and additional capacity to generate economic activity. The introduction of the euro allowed the increase of debt by public and private households in large part by reducing constraints and costs. Without the threat of devaluation capital flowed to deficit countries with few limits.

Removing the exchange rate as an economic adjustment instrument generated asymmetric costs from shocks for different economies and increased the difficulties a common central bank would have in setting appropriate interest rates for all members.<sup>4</sup> We want to suggest that the critical fault in the Eurozone architecture lies in weak incentives to generate sustainable national fiscal policies, which would allow automatic stabilisers to work fully and/or to encourage greater resilience in form of higher productivity and job creation capacity as substitutes to exchange rate flexibility (Giavazzi and Wyplosz, 2015). Both are potential means of economic adjustment, but both are limited and constrained in the Eurozone (Gächter et al., 2016).

Fiscal policy space for many countries was used up and debt levels very high even before the global financial crisis, while structural reform agendas have been inconsistently applied and are usually less pursued in good times (OECD, 2010). These constrained policy options engender difficult intra-Eurozone disagreements among national authorities about what constitutes long-run, sustainable policy, and about how short-run stabilisation policy relates to longer-run economic growth. The connection between them is often limited to fiscal policy and efforts to develop a federal fiscal union whereas it ought to be much more

---

<sup>3</sup> We are aware of the many theoretical and empirical difficulties with a meaningful productivity concept. What we have in mind here when speaking about productivity growth is sustainable per capita growth in GDP.

<sup>4</sup> The internal assessment concluded that the costs of eliminating national exchange rate adjustments would be small because country specific shocks would be permanent anyway (EEC Commission, 1990).

focused on employment resilience and reallocation of capital and labour to permanently raise productivity growth rates. Neither more fiscal space nor more effective structural reforms appear likely to materialize any time soon. The second-best Eurozone-wide policy to speed up the cyclical recovery is for the ECB to continue setting policy to support weaker economies, while their political markets work toward better defining effective and locally-owned reforms to increase trend growth. However, a solution will have to be found for countries in a more advanced state of the recovery to cope with the too expansionary ECB stance because a fiscal rule would trigger a restrictive policy response. As we argue below, structural policy could play a useful role to increase the effectiveness of the monetary/fiscal policy mix.

### National discretion and monetary union: A fundamental contradiction?

The EMU didn't prevent unsustainable national behaviour; it allowed imbalances between saving and investment to grow and persist in an environment of deep financial integration.<sup>5</sup> The common currency reduced interest costs and incentivized more public and private consumption spending without much concern for debt sustainability. On the contrary, EMU was supposed to lift the domestic financing constraint on investment (Blanchard and Giavazzi, 2002). It indirectly raised relative price levels and appreciated real exchange rates in debtor countries, widening internal and external imbalances.<sup>6</sup> The monetary union did not bring more financial market discipline to bear on national fiscal policy, rather it attenuated it.<sup>7</sup> It reduced the ability to execute large fiscal surpluses or deficits likewise (Caselli and Wingender, 2018). The Maastricht criteria and the Stability and Growth Pact (SGP), added to try to reduce moral hazard in public spending, but did little to reduce high debt or enhance productivity growth to make debt more repayable.

When the GFC hit there was enough fiscal policy space in many countries, including Italy and Spain, to induce counter-cyclical fiscal responses that were initially sustainable and stabilizing. But the rise in debt also narrowed the policy space available when the recovery

---

<sup>5</sup> The regulatory challenges of deep financial integration were obviously underestimated, although early warnings from the US financial market liberalisation were raised long before the GFC (Barth et al., 2000)

<sup>6</sup> More arguably, the common currency should also have encouraged export competitiveness via stronger productivity growth, but if this happened, it probably worked only for certain types of firms that already had well-established export cultures, say in Emilia-Romagna, or some French industrial firms, and of course German exporters. For some economies (Germany, Austria) the appreciation of the euro and disinflation incentivized lower domestic prices and real internal depreciation.

<sup>7</sup> The national management of fiscal policy in a monetary union was considered as a non-trivial issue very early on (Artis, 1991)

faltered in 2011. The euro crisis worsened when debt levels were *already* high and the capacity of governments to make interest payments was low.<sup>8</sup> In this context, providing emergency finance to maintain spending levels had a positive short-run effect, but in the long-run added to concerns about insolvency. Time-consistency concerns and arbitrage ensured the latter dominated and illiquidity slid into questions about insolvency.

Unfortunately, the difficulty for Europe does not end there – the euro crisis was not only about whether and how to finance or resolve very large negative output gaps. Because European economies are open, that combination of rising prices and excess spending also results in external imbalances and dependence on capital inflows. In a macroeconomic sense, there is no meaningful distinction between a country that finds itself heading into insolvency because of an asset price bubble and private debt, or due to large and persistent fiscal deficits and public debt. In each case, the inability to depreciate prevents regaining competitiveness quickly enough to access to foreign demand as a substitute for eroding domestic demand.

If the Eurozone were truly a closed economy in which all the countries' trade surpluses and deficits were with each other, then surplus and deficit countries could gain from a coordinated pattern of fiscal expansions and contractions. Output and its composition would stabilise as external deficits and surpluses fall. Of course, real life is more complex. Where European economies trade and compete more with countries outside the Eurozone, the simple coordination outlined above loses efficacy, and, in particular, fiscal policy loses traction. The latter will tend to worsen the balance of trade with all their trading partners, internal and external to the Eurozone, inhibiting growth in tradeables sectors as a compensating response for reduced domestic demand. For deficit countries, using fiscal policy aggressively to increase economic growth will hasten the onset of insolvency.

A fixed-exchange rate variant of the Dornbusch (1983) model can be used to highlight the stylized facts of Eurozone member countries with macroeconomic/structural imbalances within the monetary union<sup>9</sup>. The model distinguishes between slow (labour wages) and fast reacting (goods prices, output and interest rates) variables. For members of a monetary

---

<sup>8</sup> Some countries (Spain, Ireland) started with high private debt, which was socialized into public debt in the unfolding of the crisis.

<sup>9</sup> See Appendix for a description of the model

union, which are hit by an adverse asymmetric shock the nominal exchange rate is fixed and only internal devaluation remains as an option for adjustment. In this case the extent of wage flexibility determines the shape of adjustment. If wages are flexible, also downwards, as was the case in the Baltic Republics during the GFC, the adjustment towards the new equilibrium after an asymmetric shock will be short and costs in terms of lost output and unemployment will be low. In case of more sticky wages the adjustment will take longer and include periods in which a “Keynes effect” is working: Because wages do not adjust immediately the expectations of future wage cuts will induce expected inflation to fall and the real interest rate to rise, thus aggravating the crisis in the short run.

Over the longer term, countries with poor export performance also tend to exhibit weaker productivity and income growth. That constraint on income growth is further exacerbated in Europe by low population growth rates, declining labour force and high unemployment. An economic solution to this set of problems would be to move closer to fulfil optimal currency area (OCA) criteria – greater capital and labour mobility, and in particular, pricing that responds to negative shocks to competitiveness in an effort to maintain employment levels.<sup>10</sup> In other words, more wage and price flexibility achieving the necessary change of the real exchange rate. In addition, with a common currency, fiscal policies need to be considerably more sustainable in order to shoulder the challenge of letting automatic stabilisers work with a wider amplitude. This generalisation holds for all national economies in the Eurozone, irrespective of the specific origin of their crises.

As it turns out, the competitiveness problem was ameliorated by the ECB’s monetary policy after 2011. Euro depreciation improved the position of all Eurozone economies relative to the rest of the world. Eurozone fiscal consolidation also played a key role in reducing imbalances and more directly stabilizing debt profiles, but this was more contentious because it also weakened growth and generated contagion effect. We will come back to these issues later, but for now, it is enough to note that this was all useful in moderating the external imbalances part of the euro crisis as demand for financing fell. ECB policy was also

---

<sup>10</sup> This is certainly not impossible but requires a wide-ranging policy effort. When Austria tied its exchange rate to the Deutschmark in 1974 it did not form an OCA with Germany, but compliance of social partners with a full employment goal generated enough real wage flexibility to cope with asymmetric shocks (Hochreiter and Winkler, 1995). Cooperation by social partners was secured by high spending for active and passive labour market policies in a form which is not easily applicable for other countries and in other periods of time, especially keeping in mind that the debt to GDP ratio in Austria has considerably risen in the meantime.



critical to providing support to economies and the financial system, by weakening the link between sovereign debt and bank balance sheets (the doom loop). This created confidence that neither banks nor sovereigns would fail, and depreciating the euro also worked to create confidence and limit capital flight from Europe. In this environment, it is unclear that either a fiscal transfer union or more German fiscal expansion would have added significantly to confidence. The more important critique was that German policy-makers slowed the ECB from acting and that the German economy remained on a low growth path with little stimulus spilling over to other, especially struggling Eurozone members, which had been left with no other choice than stabilising domestic and external imbalances with austerity.

The Eurozone architecture does need shoring up, in particular to enable it to weather liquidity shocks and reduce their propensity to become solvency crises via financial systems. There are various ways of moving forward. One is to further build the Eurozone architecture to make risky behaviour/policy safer still with large financial stabilizers. Another is to remove national agency, adding fiscal union to monetary union. A third is to try to minimise risky policies.

Because the first is unlikely to fundamentally alter policy, we think this is unhelpful in breaking the link between liquidity crises and insolvency. Neither continuous fiscal deficits nor rising asset prices necessarily generate the productivity growth that could reduce debt levels and raise incomes of (South-) Europeans. On the fiscal side, taking away national agency would clearly exacerbate an already severe political problem around the democratic deficit and further distance decisions about fiscal sustainability from local ownership (Begg et al., 2015).

Mutualisation of sovereign debt may be more useful, although it is unclear how it would affect existing high debt levels (weighted by country in a common bond) or on weak growth.<sup>11</sup> Mutualisation also still has to address the moral hazard problem facing

---

<sup>11</sup> The marginal cost of borrowing for debtor economies will be determined above the 60% of GDP threshold and thus remain high, even though the average cost of borrowing will come down with mutualisation.

sovereigns. That usually implies that the real longer-term cost of incurring more debt needs to go up, not down.<sup>12</sup>

As noted above, monetary policy has carried some of the burden of economic adjustment, imposing it on the margin on creditors and the rest of the world, but monetary policy is unlikely to resolve the underlying productivity growth problems of Europe's national economies. In addition, asymmetry in constituent economies has again come into play as negative interest rates stokes asset price inflation in creditor economies. Monetary policy in Europe will be permanently handicapped by divergent national macro- and microeconomic trajectories and conditions. This is running against the fundamental objective of convergence among European Union members (Franks et al., 2018). The Eurozone needs to be beneficial likewise for Germany and Italy, to name only two members with divergent performance.

Instead, we would 1) opt to make fiscal balances fit for allowing automatic stabilisers to work fully and 2) design a co-ordinated structural reform programme replacing the eliminated exchange rate mechanism within EMU to correct real exchange rate imbalances and foster economic growth. These two reforms have to be accompanied by better incentives for sustainable, investment-focused, fiscal policy with enough countercyclical action capacity and structural reforms that increase productivity and job creation. These can and should be combined with other existing or planned efforts – Eurozone debt schemes, a pre-funded stability fund as foreseen by the ESM, greater fiscal flexibility by creditor economies – but our proposals are more likely to address the propensity to crisis, create new policy space, and generate future economic growth. This would also be a way to deliver the promises that have been associated with the introduction of the euro (EEC Commission, 1990).

Table 1 attempts to phrase these narratives into a shocks/institutions approach – members of the Eurozone react differently to local and global shocks but have to cope with one instrument less (Blanchard and Wolfers, 2000).

---

<sup>12</sup> In the short-term, in the midst of crisis, economic growth would benefit from a lower cost of capital, although it would reduce the incentive to make the fiscal adjustment. This is the conundrum of any IMF programme and why conditionality is supposed to be applied to countries receiving financing.

Table 1: north-south policy making and shocks

	Local shock	Global shock
Northern Institutions: External competitiveness policy orientation	Small quantity response of domestic economy Automatic fiscal stabilisers working	Price/quantity response of big export sector no fiscal response (beyond automatic stabilizers and some guarantees)
Southern Institutions: Domestic demand policy orientation	Proportional quantity response Big (fiscal) policy response with active intervention, financed by government bond holdings of domestic financial institutions	Weak response of small external sector Request for fiscal intervention in case of contagion, realisation depending on ability to finance current account deficits

Table 2 shows the growing divergence between Germany and Italy, measured by real expenditure per capita in Purchasing Power Standards, a broad economic activity indicator, which is not biased in favour of surplus economies (contrary to GDP per capita). The difference in per cent of the EU28 average nearly tripled between 2007 and 2017. Economic divergence of big Eurozone members is a worrying sign of failing to achieve its main goal of convergence on a more dynamic and resilient growth trajectory (EEC Commission, 1990).

Table 2: The divergence between Germany and Italy, 2007-2017

	Germany	Italy
Real expenditure per capita, PPS, 2007, in p.c. of EU28	117	107
Real expenditure per capita, PPS, 2009, in p.c. of EU28	117	106
Real expenditure per capita, PPS, 2017, in p.c. of EU28	123	96

Source: Eurostat

The OECD Going for Growth project decomposes the GDP per capita gap with a leading benchmark country (for instance the US) or group of countries (the upper half of OECD member countries) into its labour productivity and labour utilisation components. For 2016 the decomposition reveals that labour productivity and labour utilisation contribute about equally to the Italian GDP gap (Table 3).

Table 3: The GDP-per-capita gap decomposition, 2016

	Germany	Italy
GDP per capita gap, in per cent of OECD upper half 2016	-4,1	-25,0
Labour productivity gap, in per cent of OECD upper half 2016	8,8	-13,1
Labour utilisation gap, in per cent of OECD upper half 2016	-12,4	-14,2

Source: Economic Policy Reforms: G4G 2018

However, in a dynamic sense, the divergence relative to Germany is driven by the deteriorating labour utilisation component while the productivity gap remains constant (Table 4). In other words, between 2007 and 2017 the membership in the Eurozone has not facilitated job creation in Italy.

Table 4: The GDP-per-capita gap decomposition, 2007-2016

	Germany-Italy		
G4G – Economic policy reforms	Gdp per capita gap	Labour productivity gap	Labour utilisation gap
2007 (in relation to US)	12,3	19,0	-10,7
2009 (in relation to unweighted upper half of OECD)	10,0	18,1	-7,0
2016 (in relation to weighted upper half of OECD)	20,9	21,9	1,8

Source: Economic Policy Reforms: G4G 2009, 2011, 2018

Of course, the underperformance of the Italian economy cannot be attributed to problems of the Eurozone alone in the same way as the relatively good German performance is not only due to benefits from membership in the Eurozone. Nevertheless, the evidence requires an explanation where this divergence is coming from.

The various perspectives on Europe's difficulties all resonate. But we should not be indifferent to them. After all, financial crises are not new, and the international community does have reasonable ways of helping countries work their way through them. That is shown well in the history of advanced and emerging economies in crisis. The European experience is different in various ways, but not least because of the common monetary area and supranational institutions that countries have built up to foster European economic and political integration. And it seems sensible that further efforts to integration can be developed that also address instances of crisis, how they are managed, and how economic damage from them is limited. But it is a mistake to think of financial or economic crisis as events that discretely happen to economies independently of choices made at the national level. As in many emerging economy crises of recent decades, Europe's national fiscal policies and means of generating income creating capacity are decisive factors.

In the next section, we look at whether German policy within the union or the monetary union itself is the cause of Eurozone problems. We then look at the role of fiscal policy in the Eurozone. In particular, we explore fiscal policy options when the sustainability of long-term potential growth is in question. Finally, we look at what has made German adaptation

to monetary integration successful despite its own relatively mediocre growth performance. This discussion is about structural reforms, which we identify as the policy levers that best replicate optimal currency area conditions and could make EMU sustainable. The important nuance of our approach is to treat structural reforms symmetrically – like nominal exchange rate adjustments while currently proposals for structural reform initiatives still emphasise national responsibilities.<sup>13</sup>

### Is Germany the problem?

As the most obvious large creditor in the Eurozone, critics of German policy have argued for more fiscal expansion, less focus on export competitiveness, more support for the European Central Bank (ECB) and greater forgiveness for peripheral economies in trouble. Each of these suggestions have merit, but some much more than others. While it is easy to portray Germany as an obstacle to a larger fiscal Eurozone response to the global financial crisis and resolution of the peripherals' economic collapse (Landmann, 2018), we don't believe this adds much value to understanding the zone's travails. Arguing for more discretion will do little to place Eurozone economic policy on a more stable footing once the dust settles. This is because the national, microeconomic and financial reasons that explain the particular trajectories of specific countries are too easily ignored in a macroeconomic review of what happened. Many countries will remain hobbled by high debt levels. Germans are correct to highlight these interacting and complex factors as being responsible for the economic depths plumbd by some countries, if not the precise cause of the euro crisis. And German policy is correct to imply that it is better for all members of the Eurozone if countries try to retain solvency.<sup>14</sup> Debt-financed counter-cyclical fiscal measures are less effective when debt is already high and ineffective when debt is unsustainable (and capital markets open).

As noted earlier, the more potent criticism is that Germany delayed the ECB from combatting deflation more aggressively and slowed the creation of the ESM. The debt forgiveness question (for Greece) seems more difficult to apportion direct responsibility for its handling, in part because the implications of it are complicated – forgiving debt implies

---

<sup>13</sup> A recent example is Dolls et al. (2018). Also international organisations emphasise national responsibilities for structural reforms with an eventual recognition for external spillovers (OECD, 2018; IMF, 2017; EC, 2018).

<sup>14</sup> There are gains to monetary union, otherwise countries would not join. Abusing those gains (by reneging in the prisoners' dilemma framework) does not necessarily mean that the monetary union must have mechanisms equivalent to full exchange rate flexibility. But it does mean there will be shocks to single member countries that cannot be fully absorbed by the union and its common monetary policy.

taking fiscal responsibility for countries in default. But also, because also French banks' large exposure to peripherals' debt meant that also France's government played a large role in working against debt write-offs.

The other key channel for adjustment is in prices and wages, which become more important when currencies are fixed (Bleaney and Lin, 2108; Brixiova et al., 2010). It is more critical of German views to observe that these factors, while crucial areas for reform, are unlikely to be tackled in politically-acceptable ways in the midst of an economic crisis. And it is also fair to say that German policy makers are too reluctant to acknowledge the benefits the economy gets from the Eurozone and the less rigorous approaches to wage competition pursued in some of the countries, in particular as they manifest in a sustained intra-European trade surplus. Figure 1 could create the impression, that the intra-Eurozone trade surplus of Germany varies with the cycle.

Figure 1: German trade surpluses as a percentage of GDP

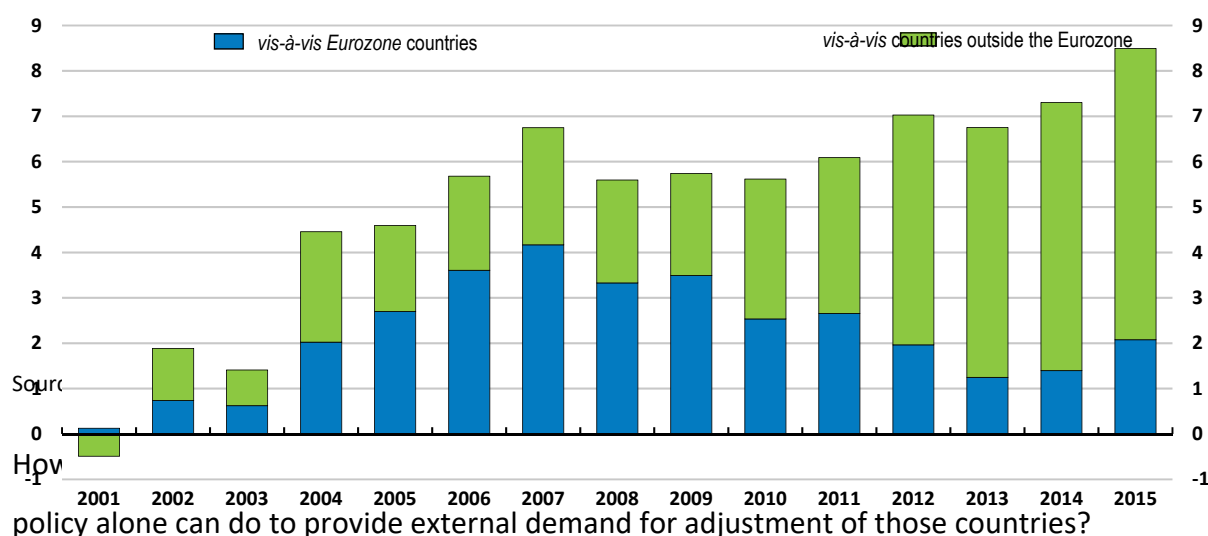
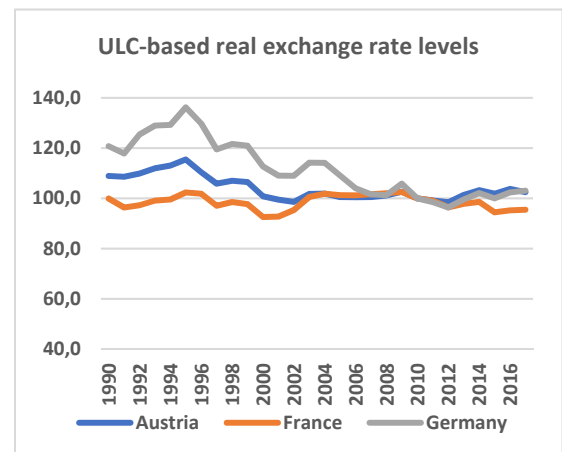
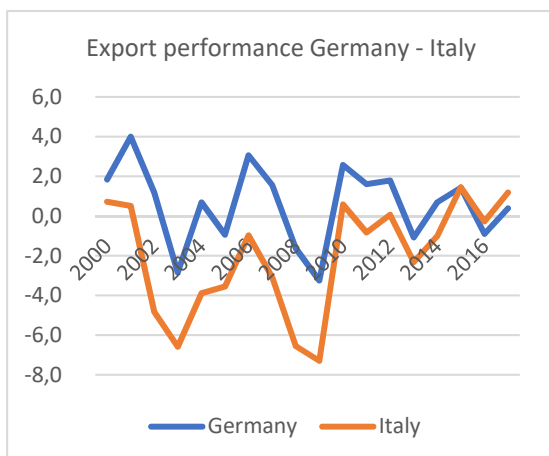
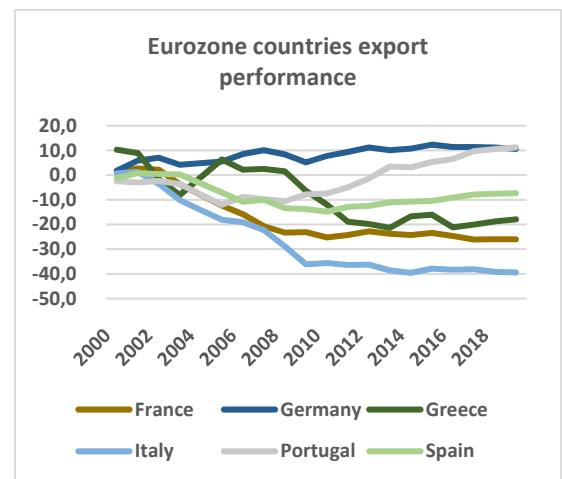
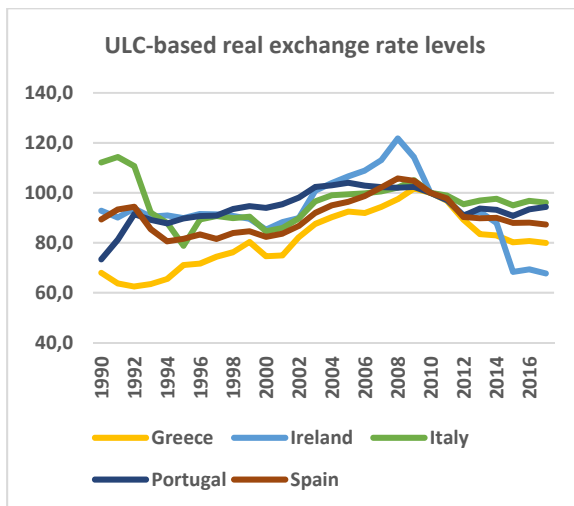
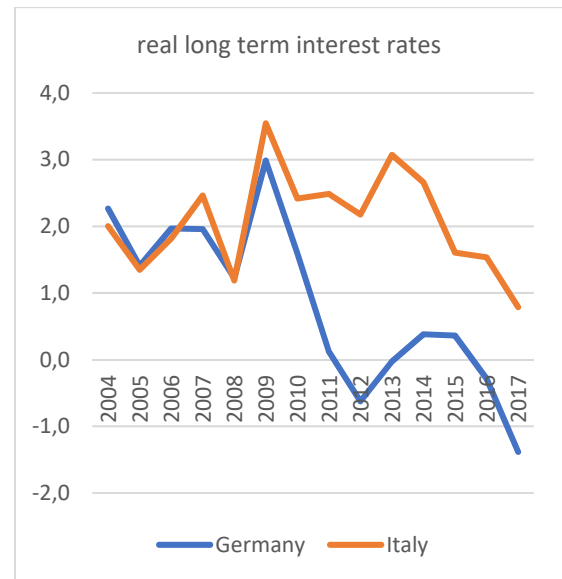
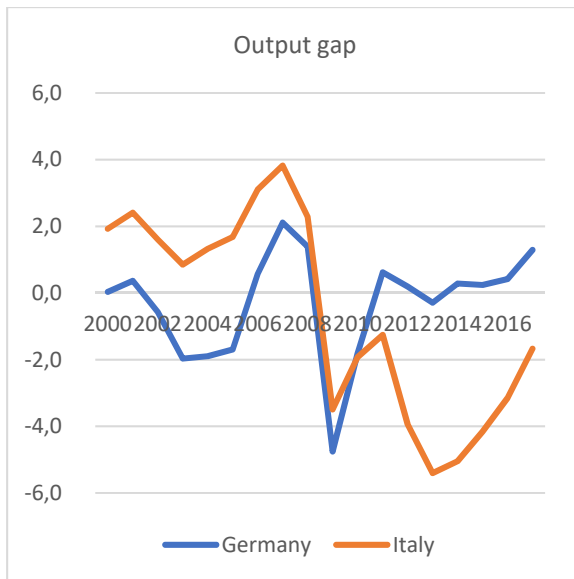


Figure 1) shows a useful evolution of German surpluses with Eurozone countries. German surpluses increase in good times for especially southern trading partners (when the output gap was positive before 2008) and decrease in bad times (when the output gap was negative). It is telling to note that as soon as the economic recovery gained some traction in 2015, the German intra-Eurozone trade surplus increased again.

Figure 2: Real exchange rates and export performance (OECD Economic Outlook, November 2017)<sup>15</sup>

<sup>15</sup> Export performance is measured as the accumulated change in the ratio of exports to trading partner imports, weighted by the size of each trading partner.



Source: OECD EO 103 Statistical Annex, Annex Tables

Surpluses increased as real exchange rates adjusted and countries increased spending (see real effective exchange rates in Figure 2). This peaked and started to moderate in 2007 when the German surplus with the Eurozone reached just over 4% of GDP, before declining

to about 2.5% in 2010 and about 1.2% in 2013 and 2014. Of course, also the product mix of German exports plays a role, because of its specialisation in capital goods. However, this is more likely increasing the amplitude, but not the level of the current account over the cycle. The main driver of divergence within the Eurozone appears to be the different dynamics of the real exchange rate since the establishment of the Eurozone (1999). Greece, Ireland, Italy, Portugal and Spain experienced strong appreciation in the wake of loan financed domestic demand booms while Germany, France and Austria managed to keep the real exchange rate roughly constant (Figure 2). Consequently, Italian export performance fell short behind Germany between 2000 and 2015.

The first two panels of Figure 2 show the correspondence of the massive real interest rate spread between Italy and Germany after the GFC and the turnaround of the output gap in both countries around the same time.

Table 5 shows the ranking by size of bilateral trade deficits for Italy, Spain and Greece, indicating the role of Germany as a source of imbalance behind China, but also relative to energy exporters (Russia, Netherlands, Iraq, Nigeria). To the extent that German capital goods exports support stronger productivity growth in recipient countries, the deficits are less of a concern, and even less so where these are not competing with capital goods producers in these countries. The primary charge therefore is that Germany was not absorbing enough imports, suggesting it should have been the consumer of last resort within the Eurozone. For the Eurozone, more recently there has been stronger growth in German wages in non-tradeables sectors and on a gross basis, but not in manufacturing.<sup>16</sup>

We will discuss this further below, but the impact of euro depreciation relative to the US dollar and yen are much stronger in the latter period (from 2011) as the ECB cut rates and conducted its own qualitative easing programme. Low inflation relative to the US and emerging market economies, including China, enhanced the real depreciation and helped to drive up German surpluses with countries outside the Eurozone.

*Table 5: Ranking of size of bilateral trade deficits for Italy, Spain and Greece*

---

**Trade deficits of selected countries\***

---



---

<sup>16</sup> See Six, Jean-Michel and Sarah Limbach, 2018.



---

Ranking	<u>Italy</u>	<u>Spain</u>	<u>Greece</u>
1	<b>China</b>	<b>China</b>	<b>Russia</b>
2	<b>Netherlands</b>	<b>Germany</b>	<b>Germany</b>
3	<b>Germany</b>	<b>Netherlands</b>	<b>Iraq</b>
4	Belgium	<b>Nigeria</b>	South Korea
5	<b>Russia</b>	India	<b>China</b>
6	<b>Azerbaijan</b>	Czech Republic	<b>Netherlands</b>
7	<b>Iraq</b>	Bangladesh	Belgium
8	Vietnam	Ireland	France
9	Ireland	Vietnam	<b>Iran</b>
10	Czech Republic	<b>Algeria</b>	Kazakhstan

---

\*Italy and Spain are 2016 annual averages, Greece is 2017 annual average

---

Source: Bundesbank

For the Eurozone, the trade surpluses also reflected strong net investment by German banks and firms into the relevant countries. For countries like Ireland, there was inward investment by countries outside Europe. In both instances, the key question is how the economies internalise the flows of capital. If they are sterilised, via fiscal surpluses or building reserves, then the macroeconomic consequences can be contained, and real appreciation is moderated. If they are allowed to reduce capital costs and absorbed into greater fiscal spending or private investment with low rates of return, then real appreciation occurs, and imports start to rise relative to exports. Figure 2 suggests that on balance, real appreciation became a problem in most Southern Eurozone countries from about 2000. On the contrary, Northern Eurozone member countries, like Germany achieved real depreciation and Austria or France managed to keep the real exchange rate roughly constant. As a consequence, export performance (3<sup>rd</sup> panel in Figure 2) widened accordingly between Germany, remaining on top, while Italy was sinking to the bottom.

Germany's macroeconomic imbalance is part of the problem and further down we discuss how Germany could do more to become part of the solution, which goes beyond what the Commission has set up in form of the macroeconomic imbalances' procedures. The other part is the structural inability of Southern countries to prevent loan-driven and unsustainable real appreciation.

A simple model of an open economy with domestic and foreign drivers of economic growth and sticky wages (Dornbusch, 1983) can illustrate the differences between Italy and Germany. The relative importance of the real exchange rate versus the real rate of interest

as a driver of growth as well as the speed with which internal depreciation/appreciation corrects a deviation of the real exchange rate from its equilibrium value can replicate the different responses to an adverse demand shock.

Simple OLS estimates of the modified IS- and Phillips curves confirm the first impression of systemic differences between Germany and Italy (Appendix). As a consequence of these differences, Germany has no problem maintaining its external competitiveness with fixed exchange rates, because its wage setting process is strongly reacting to changes of the real exchange rate. On the contrary, Italy needs a cyclical deterioration to achieve the necessary wage adjustment, which corrects an overvaluation of the real exchange rate over time. Considering the significant coefficient of the real exchange rate in the Italian IS curve the inability to unilaterally devalue generates costs for the Italian economy in form of lower output and higher unemployment.

Macroeconomic policies can help to only a certain extent and under certain conditions (as we discuss in the next two sections) because the underlying problem is structural.

### Monetary policy and adjustment to the crisis

The monetary union did three basic things. It removed currencies and the exchange rate policy tool. It eliminated national interest rate policy and ceded it to a European central bank<sup>17</sup>. And it extended a large degree of conservative policy credibility to all member countries, benefiting primarily borrowing costs on public debt (White, 2017). In the period before the global crisis, ECB policy focused on maintaining a Eurozone inflation average, by definition not tailored to low or high inflation economies. Where countries followed more rigorous fiscal policies and achieved real depreciation, trade surpluses were eventually created. For some countries, as interest rates fell, budget constraints for public and private borrowers shifted without generating stronger income and exports growth (Hašková and Vochozka, 2018). Trade surpluses were recycled into the southern periphery, enabling large scale borrowing in support of government and private consumption, including owner-occupied housing (the mix varying from country to country). Asset price bubbles were one

---

<sup>17</sup> Some authors argue that the ECB became a more conservative „price-stability-only“ central bank than a weighted average of the Eurozone central banks were before the introduction of the euro (Coricelli et al., 2006)

offshoot of this, pushing up expected rates of return on loans extended by banks and inflating the value of collateral, thereby making bank balance sheets look overly robust.

In effect there were binary outcomes, larger net creditors and larger net debtors, now financed with international capital rather than constrained by domestic saving. In this context, when servicing of external payments is questioned and a shock hits, the starting point of lower risk and interest rates reduces the ensuing costs of adjustment. The initial (2009) fiscal response was counter-cyclical and substantially going beyond automatic stabilisers<sup>18</sup>. The drop in domestic demand in the wake of the sudden stop of capital flows that was a feature of the GFC was met by a major expansion in fiscal deficits and higher debt levels. A sharp drop of imports contributed a substantial part of the adjustment, propagating the crisis also to countries which experienced initially no decline of domestic demand. At a national level, immediate fiscal responses were generous, with automatic stabilizers operating and public debt levels allowed to increase.<sup>19</sup> As GDP growth rates recovered, fiscal consolidation started, but much of the global recovery was a statistical bounce – real trend growth weakened. In the US, when private balance sheets got into trouble, the public balance sheet could carry the economy until private balance sheets had recovered. In much of Europe, however, both sets of balance sheets turned unsustainable quite quickly.

This response, a rise in domestic demand to offset a sharp decline in mostly domestic demand, made counter-cyclical sense in the short-run. But it also required public and private balance sheet repair and a greater appreciation of the poor investment choices made in the period before the crisis. This further implied that the recovery could not last for long unless conditions for new credit extension were re-achieved. That had to include writing off non-performing debt in the financial sector for non-financial corporates and for households. In effect, the private sector needed to substitute itself for the public sector to drive growth once the latter had increased debt too much (or encumbered itself by taking on private debt). That didn't happen and couldn't without internal depreciation and/or a large autonomous rise in private investment, the latter constrained by high debt levels,

---

<sup>18</sup> The cyclically adjusted general government deficit deteriorated in the euro area by a percentage point in 2009 (OECD, 2018).

<sup>19</sup> This response to the GFC was made possible in a sense by the earlier imposition of the Maastricht rules governing fiscal deficits.

weak balance sheets of financial institutions, and deflated expectations of future economic growth. Some kind of adjustment mechanism is needed to substitute for relative prices, but it cannot be fiscal, in large part because they don't achieve the same outcomes. Fiscal expansions work against improving competitiveness by raising all prices, without necessarily differentiating between tradeables and non-tradeables.

In the short term, deflation implied that productivity needed to rise to get growth, but in a context without rising output prices to flatter profits and help motivate investment. Without lower input costs, or greater sharing of working time (as was agreed in German firms), and a quicker response to deflation by the ECB, implied that the distribution of adjustment eventually fell in the immediate post-GFC period primarily on economic growth, employment and eventually on monetary policy. The ECB eventually pursued its own quantitative easing (QE) programme because it brokered agreement to buy sovereign and corporate debt. This attenuated the doom loop and also enabled euro depreciation.<sup>20</sup> QE was late in coming, however, in large part because Germany and other northern economies did not have the same output gaps as other economies more directly hit by the collapse in domestic demand. This asymmetry in business cycles and economic policy space available to achieve depreciation was the primary constraint on monetary policy at this time. Higher inflation might have marginally reduced the real debt burden of overextended governments and might have stoked economic growth slightly, making fiscal constraints somewhat less binding. But the ECB was constrained and could only lower average interest rate levels to the point where capital continued to flow to weaker economies even as output gaps in northern economies remained contained.

If we believe that the GFC and the euro crisis were temporary crises, then liquidity-based policy solutions seem sensible. They address the immediate crisis. They are temporary. But fiscal policy doesn't create the right economic effects. In this constrained environment, it is worth asking if a greater emphasis on financial integration – more market-based finance – could have both tempered imbalances growing before the crisis as well as moderated the

---

<sup>20</sup> See Berka et al., 2014: Belgium, Germany and France have average real exchange rates close to zero, implying they are at the European average. Ireland and Finland have much lower real exchange rates, while Greece, Spain, Portugal and Italy, have much higher average real exchange rates. The characteristics of the sectoral real exchange rates, and the average relative price of non-traded goods closely mirror the aggregate real exchange rates. See also Fidora, Michael and Giordano, Claire and Schmitz, Martin, 2018, who find smaller but more persistent misalignments in real exchange rates.

negative shocks afterwards (Jones, 2015). Integration generally lowers the average cost of finance to the marginal economic agent but can leave economies more vulnerable to asset price bubbles and rising public debt, as in the banking crises of Iceland, Ireland and Cyprus. In these cases, financial regulatory arbitrage and capital flows grew well beyond the oversight of their limited and overwhelmed national supervisory institutions -- more financial integration increased the pro-cyclical trend (Adrian and Shin, 2009). When the markets panicked, more financial integration probably facilitated the externalization of policies and behaviour at the national level that had pushed up asset prices and indebtedness (Staeher, 2016).<sup>21</sup> These benefits of integrated financial markets may be heightened in a fixed exchange rate setting, where even small economies appear to be able to share the costs of cleaning up after a burst asset price bubble.

In terms of productivity growth, there is some evidence to show that access to finance has maintained the lifespans of 'zombie' firms in many countries, as banks are encouraged to 'evergreen' loans (Andrews, 2017). This process inhibits Schumpeterian dynamics that should reallocate labour and capital and raises its eventual cost. The connection between finance and real economy outcome remains critical to the debate (Giavazzi and Wyplosz, 2015). Financial integration appears to prolong and sustain imbalances, rather than enhancing market discipline. This suggests that more financial integration is unlikely to move countries closer to OCA.

The historical answer to the failure to meet OCA requirements has been two-fold. One was the effort (initiated by Delors) to free the movement of labour and capital and reduce and harmonize regulatory barriers (establish and complete an internal market). The second was to try to develop a fiscal union to redistribute tax revenues and improve growth effects of public spending.<sup>22</sup> We turn to fiscal policy and structural reforms for the remainder of the paper.

---

<sup>21</sup> This took different forms in different countries. It could be allowing an unsustainable public debt dynamics (Greece), tolerating ballooning private household debt to fuel house price boom and bust cycles (Italy, Baltics), incomplete regulation of cross-border banking offering risky FX-loans (Austria), hampering access to its domestic services markets (Germany), political influence of lending practices (Spain), among others.

<sup>22</sup> See Fernández and García Perea, 2015.

## Fiscal policy of sovereigns and fiscal policy of the Eurozone?

The contradictions we have explored complicated policy management severely in the Eurozone and made it difficult to exit the economic conditions of the crisis period. While exports needed to rise for most deficit countries, imports and debt levels needed to fall, with economic growth recovering as quickly as possible. A common argument is for vastly expanding fiscal transfers to offset the loss of the currency – redistribution from strongly growing economies and using this for more public investment tries to replicate the effects of relative price adjustment. Moves to do this, either through supranational budgeting or through precautionary funds (like the ESM), have been constrained by two positions. One is the reluctance of most Eurozone members to give up more fiscal sovereignty. The second is the moral hazard argument that stresses incentive incompatibility – cheaper and more finance induces more, usually permanent, public spending and in some cases more unproductive private spending. But there is another argument against it lurking behind German approaches, which is simply that fiscal policy is unlikely to deliver the economic responses that countries need to adequately address the shocks hitting them. The fiscal response would need to result in permanent relative price adjustment, which is in direct contrast to the usual outcome of rising domestic demand pushing countries into greater overvaluation.<sup>23</sup>

Eurozone arrangements like the Maastricht Treaty and the SGP could not reduce moral hazard and induce better fiscal behaviour. They reduced market effects on fiscal behaviour<sup>24</sup> and encouraged pro-cyclical finance. Fiscal constraints on deficits (3%) and the debt to GDP level (60%) were not observed and financial flows were too easy to access and too cheap. To address this lack of credibility in those arrangements overall fiscal rules have been clarified and tightened for EU member countries (Kopits, 2011). Stronger fiscal transfer arrangements, mutualisation mechanisms and various sovereign bond concepts have been proposed to both more closely integrate European economies and mitigate the impact of consolidation on the economy even as they reduce asymmetric fiscal and financial risks.

---

<sup>23</sup> See David Vines (2015) for an alternative view.

<sup>24</sup> Governments did not have to fear increasing debt service costs in case of deteriorating fiscal outcomes before 2008 (Borgy et al., 2011).

The stronger of the three proposals – a system of fiscal transfers – could reduce discretion of national authorities and if rules-based could be more effective in improving fiscal outcomes. Larger fiscal transfers, based on a central pool of revenue from national treasuries, would strengthen automatic stabilisers and increase the capacity of the zone to offset asymmetric shocks where these are temporary. If transfers increase through equalisation measures for instance, then the exposure to asymmetric shocks may decline over time but it may also further weaken incentives for structural reform. Transfers that do not become sustainable and decline in size over time are not desirable. They eventually impede economic adjustment and are failures of public investment. A system to collect and distribute more fiscal resources would of course require an agreement on how it all works. But it would also violate many countries' desire for a meaningful level of macroeconomic sovereignty, having given away the nominal exchange rate and interest rates in EMU.

Mutualisation of sovereign debt would, like the monetary union, increase the credibility of national fiscal policies if a common guarantee can be provided that debt would be serviced. To reduce the obvious moral hazard problem implied by this, mutualisation should have rules and penalties, while enabling countries to claim retention of fiscal sovereignty. Since the implicit cost would accrue to those countries already adhering to more prudent fiscal policy, however, this might work better if combined with greater centralised control over fiscal decisions in deficit countries. Such mechanisms could help to prevent real appreciation and prevent the need for fiscal contraction. And, importantly, they could send better signals about risk, particularly when market pricing of risk becomes pro-cyclical. Much would seem to depend on the extent of mutualisation and construction, the weighting of risk in the assets and whether that risk can be identified in the asset or subsumed in the better credit rating of the whole.

A rising cost to countries surpassing some level of public debt however is not the same as using fiscal policy counter-cyclically to offset relative real appreciation. The latter would require in the short term lowering the size of an existing deficit and in the longer term reducing public debt levels. To maintain a constant relative real exchange rate requires fully countering the propensity for the price level to rise faster than that of the trading partner. In an OCA this task is performed decentrally by economic agents responding to signals and incentives, which direct resources in the right directions. A business-friendly regulation

helps in this respect (Breuss, 2017). Outside a monetary union the nominal exchange rate shoulders the bulk of correcting a deviation from the equilibrium real exchange rate level. The real effective exchange rate could become an intermediate target, with national authorities showing how, given ECB inflation targets, fiscal policy and structural reforms coordinate to achieve the desired outcome.

While the mechanisms discussed above can help countries address and prevent macroeconomic shocks, the composition of fiscal spending and rules around how that composition is decided are also critical to putting fiscal policy on a sounder footing generally. In particular, fiscal councils help to depoliticize spending decisions and weigh against allocative biases. Public debt levels should transparently meet sustainability requirements. Similar concepts can be applied as macroprudential policy also, such as an increase of private debt needing to meet an income generation requirement.

German fiscal policy is constrained by its own output gap, which turned positive in the latter part of the recovery. For this reason, we would like to see structural reforms in Germany coinciding with some fiscal expansion. Combining the two would make fiscal easing safe for German prices because the reforms should raise potential growth at the same time. The fiscal adjustments that would be useful are in the areas of reversing the VAT increase of 2007 and greater public investment. The former would, all else equal, result in real appreciation as private spending increased. The investment could enhance Germany's potential growth rate through incentives to innovate, raising income, and both provide positive spillovers to trading partners in form of higher imports. Market opening measures in services sectors, discussed below, would create additional quite strong growth effects for the rest of Europe and further work to reduce external imbalances.

### Structural reform as a national complement to fiscal policy

With fiscal policy on a long-term sustainable trajectory and constrained further by given lower potential growth rates and demographic trends, getting to the real exchange rate adjustment that we think is necessary requires more rapid productivity growth.<sup>25</sup> These two

---

<sup>25</sup> The plea for structural reforms long pre-dates the advance of the GFC (Jones, 2016). However, what we propose is an explicit prioritisation, which aims at repairing the vulnerability of a Monetary Union, which is not an optimal currency area and where some countries face bigger problems with others to align wage developments with maintaining competitiveness without the possibility to resort to exchange rate changes.



channels may also work together, with incremental reforms in each having stronger effects, and therefore requiring less drastic changes in either.

The external balance is usually considered part of macroeconomic performance, along with the sustainability of government debt, economic growth, inflation and unemployment.

Within EMU exchange rate adjustment as an instrument is no longer available, monetary policy is assigned to reach the price stability goal and sustainable fiscal policy should ideally be countercyclical. This leaves one instrument missing. We argue that a properly designed and co-ordinated structural policy package could close this gap<sup>26</sup>.

Like fiscal policy, structural policies – the regulations, norms, degrees of openness and market structures that determine the efficiency of specific markets – have distributional consequences, including putting limits on competition, skills and jobs required, and constraints on productivity growth. For many countries, these constraints also act as price rigidities. In the 1980s, these contributed to rising unemployment.<sup>27</sup> From the 1990s, they worked with low real interest rates to cause capital misallocation for much of the period running from the mid-1990s to 2008. We have suggested that these policies have some bearing on the build-up of macroeconomic imbalances as productivity slows and on microeconomic inflexibility. Both affect the resilience of economies and their capacity to re-achieve higher levels of growth.

But there is no consensus on how structural reform or fiscal policy should be designed or how they should work. And even less political support for reforms which ideally should take place in country A (let's say Germany) because country B (let's call it Italy) is not able to implement required reforms. Although this sounds weird, it is exactly the case when exchange rate adjustments are carried out. These interventions are symmetric by definition, but unilateral by decision. We think that the macroeconomic policy architecture of EMU needs to be repaired in this respect.

---

<sup>26</sup> Such a package has to go beyond measures, which would allow an already well-functioning EMU to achieve also non-economic goals, like more inclusive growth and environmental sustainability (Bayer and Breitenfellner, 2018).

<sup>27</sup> This was the time of Euroclerosis. The typical continental institutions turned faced difficulties with the reallocation of resources in response to relative price changes, provision of new skills and adjustments of welfare benefits to an ageing society (Giersch, 1985)

Such an effort may have better chances, if properly understood as an EMU-wide coordinated package, which could help to overcome single country resistance. For instance, the resistance to policies that increase the labour force and promote wage restraint is widespread and is probably caused by fear of job loss (Bordon et al., 2018). If wages can only change over time, then the necessary wage adjustment after an adverse shock generates expectations of falling prices and wages, increasing the real interest rate and aggravating the crisis in the short run. The long run adjustment in the real wage and exchange rates are too long run<sup>28</sup>. However, if such measures are complemented by expansionary reforms in other countries then breathing room (and employment) could be generated, which makes short run adjustment costs more acceptable. A coordinated structural policy package should therefore have a balance of short run costs and benefits, just like an exchange rate adjustment, which brings higher costs for imports and higher returns on exports with it.

The problem for the Eurozone in a nutshell is that the need and ability to carry out internal real exchange rate adjustments as an absorber for adverse shocks is going in opposite directions. Germany should appreciate and Italy should depreciate. Germany (as an example for a “Northern” economy) has industrial relations, which tend to err on the side of real depreciation in order to protect international competitiveness, which is a shared goal among stakeholders and policy makers. Italy (as an example of a Southern economy) puts more weight on domestic demand while relying in the pre-euro period on nominal exchange rate adjustment to restore international competitiveness.

Consequently, the real exchange rate responses within the Eurozone are not sufficient to allow for a balanced high growth path. The missing sustainability of government financed growth after German unification is a good example for the inability of the German economy to move forward on the two legs of domestic and external demand. Instead, high unemployment and growing government debt provoked the Hartz reforms as a reaction, damping wage growth by increasing the quantity and quality of job search. On the other

---

<sup>28</sup> Such models combine an IS and LM curve with a Phillips curve, perfect foresight and sticky wages and/or prices (Dornbusch, 1976; Wörgötter, 1987).

hand the discussions about the Italian budget for 2019 illustrate that the main concern is to boost growth with the help of government financed domestic demand.

For this reason, the discussion should be on improving resilience and enabling the re-achievement of higher potential economic growth. In particular, policies should more strongly emphasize absorption of shocks rather than channelling the effects onto specific economic actors (like young workers or farmers), which tends to inhibit structural change. Compensatory responses try to make up for income losses by using fiscal mechanisms, and are central to modern welfare systems, but these contribute to hysteresis and become increasingly costly over time. Getting the balance of policy effects right would go far in creating a virtuous circle between inclusive economic outcomes and less divisive politics (Iwata et al., 2018).

#### The German model: sustainability and resilience through structural stability

If monetary union resulted in low real interest rates even for economies with high productivity, like Germany, then how did policy makers prevent real appreciation? At the macroeconomic level, appreciation pressures were countered by low inflation and competition. These fundamental policy settings help to trigger a virtuous cycle of incremental innovation, workplace learning and investment in human capital, and a form of implicit profit sharing between owners, managers and organised labour. In combination, those settings allowed for long-term business strategies that created jobs and job stability on the basis of further increasing already high productivity. Within that set of policies is early specialisation in vocational education, grant-based innovation support, and bank-driven business financing. Finally, and maybe most controversially – strict employment protection, in the German case, encouraged wage moderation and time-sharing under stress conditions. After the fall of the Berlin Wall immigration from Eastern Europe reduced skill shortages and damped wage increases. In addition, the Hartz-Reforms brought about one million benefit recipients back on the labour market, which kept labour costs low and helped with budget consolidation.

Fiscal policy worked with the emphasis on price stability and innovation too, by reducing dissaving and channelling funds to support private investment. Prior to the crisis, Germany raised VAT by three percentage points to (a comparatively low European level) of 19% at the

same time as the taxes on labour were reduced, providing a substantial real depreciation. During the crisis, and due to the sound fiscal position, fiscal resources could be used to subsidise job-retention (short working time arrangements) and to provide guarantees for firms with liquidity difficulties. Both measures made only sense because there was no pressure for structural change.

A controversial part of the German policy setup involves relatively strict employment protection legislation (EPL). This reinforces real depreciation in the context of wage setting behaviour that actively tries to maintain price competitiveness. Because of the stability this approach to EPL engenders, firms can work with labour to pursue innovation with long-term returns while developing in the workforce firm-specific human capital. Flexibility of labour inputs is achieved by a combination of internal flexibility and external flexibility at the margin. But there is a general understanding that the core labour force stays employed as long as the firm exists.

#### What should German structural reform look like?

Potential growth in Germany should be increased, while the domestic sector of the economy expands relative to the export sector. At the end the German economy should maintain its export competitiveness while increasing dynamism of services and non-tradeables sectors. The VAT cut mentioned earlier in the context of fiscal policy would also count as a structural reform that expands demand for other Eurozone economies. Entry requirements for the services sector are relatively strict compared to OECD averages and could be liberalised, enabling firms from other countries to access a more robust German domestic market. Other areas of reform should include meeting higher average levels for non-residential private investment, or the amount of information technology spending per capita in knowledge-based industries. Germany's lead in green technology could become a platform for stronger investment in renewables and other technologies in less advanced and emerging economies.

With Germany's output gap positive and stronger growth likely to push up wages, a more liberal immigration policy could meet labour supply needs more effectively, while

generating long-term remittance and investment flows to other economies.<sup>29</sup> The Hartz reforms of the early 2000s played an important role in incentivising social benefit recipients to work, increased the efficiency of labour market institutions and widened the contractual choice for employment (Tompson, 2009; Hüfner et al., 2012). With unreformed product markets that meant that an increasing labour supply met a constant labour demand schedule, resulting in increasing employment at falling relative wages. The major beneficiary was the export sector, which grew even further, absorbing the bulk of the labour supply increase. In recent years, unit labour costs in non-tradeables sectors have started to rise much more strongly, and, with greater product and services market deregulation, could lend themselves to real appreciation.

Structural and fiscal reforms in each of the areas outlined above could help Germany provide leadership to the rest of Europe while protecting its macroeconomic preferences. A more robustly growing “single market” would help Germany create a stronger grouping of countries in the Eurozone to advocate for sustainable macroeconomic policy settings (Zettelmeyer, 2017).

### Conclusions: adapting national policy to support European integration

The popular debate sometimes carries more valuable perspective than we might normally credit to it. For much of northern Europe, southerners indulged in lax economic policies without hope of the sorts of reforms that might vindicate their bad fiscal habits. Persistent currency depreciation and price inflation prior to the advent of monetary union was the consequence of price- and wage-setting that favoured domestic demand rather than external competitiveness (Regan, 2017). Southerners in turn point to excessively protestant fiscal and monetary policies in the north – simple trade surpluses disguising aggressive mercantilism. Fine for one country to pursue for a time, perhaps, but not if they are the anchor of a continental economic area. Macroeconomic rigour beggars the defenceless neighbours not unlike repeated currency depreciation, enabling northern members to gain

---

<sup>29</sup> Immigration is impeded by strict standards set for the professions, which helps to limit supply, and on the margin favors immigration of less-skilled workers and sets up political conflict.

market share from southern economies unable to maintain competitiveness without national currencies.

The apportionment of bad behaviour is not helpful to progress in European integration. It is critical to get past the crisis and speed recovery and German policy also needs to shift to achieve this. But it is also important to agree on what is meant by a single market and how competitive weakness in that market will be addressed. And, it is necessary to arrive at economic policy processes for the Eurozone as a whole that still allows for diverse economic policy cultures. A political union might help to foster a greater consensus on appropriate economic policy, and indeed monetary integration without political union is an historical *Neuland* (Theurl, 1992). But more political integration seems unlikely in the near future.

With Mundell's optimal currency area criteria unlikely to be a serious policy target, Europe could choose a looser form of integration backed up by fiscal rules and insurance mechanisms plus more labour mobility and greater competitiveness, as opposed to a more integrated economy, backed up by much stronger fiscal transfer mechanisms. We have discussed why these are not very attractive and probably not politically sustainable.

Our policy recommendations fall within the bounds of what national governments can do and reasonably foster at a Eurozone level: more sustainable fiscal policy, plus more competitive wages and non-tradeables pricing, plus better access for investment and services reform in surplus economies. Rules-based but flexible fiscal policies should be combined with prioritised structural policies that enhance efficiency and increase employability of labour.<sup>30</sup> While similar fiscal rules can be adopted by each member country, structural policies are always country-specific. In combination they can reduce the propensity to wind-up with unsustainable macroeconomic imbalances and substitute for the missing exchange rate, supporting the architecture of the Eurozone more effectively. More structural reform would better meet the optimal currency area criteria, thereby reducing the inconsistencies of monetary policy, but reforms need to be an outcome of local choices (Begg et al., 2015). Links between Germany and Europe's other economies, via intra-industry trade, global value chains, or other kinds of linkages, could be strengthened. But

---

<sup>30</sup> Labour market reforms require some fiscal support to keep GDP from declining in the near term, while product market reforms do not impact on short-term growth while raising long-run potential (Banerji et al., 2017).

southern European countries still need to choose what kind of structure they want and understand as fully as is possible the implications of those choices.

Given its economic weight in the Eurozone and relative strength, Germany should take the lead in proposing symmetric structural reform efforts. There is a set of reforms that can address services sectors where Germany lags, boosting its own productivity and generating growth spillovers to the rest of Europe. The transmission mechanism would be mainly driven by enlarging investment opportunities in the domestic sector, which would trigger further imports, without contributing to increasing export capacity. Providing leadership in this area also stands the best chance of creating political economy benefits for reform efforts of other economies. Providing “breathing room” for structural deficit countries would also be in the self-interest of surplus countries, which would enhance the sustainability of growth in deficit economies. Deficit countries in turn, should implement structural policies that increase their export sectors. One obvious way to do this would be to widen the opportunities for domestic firms to participate in German-led global value chains. Strengthening work incentives would help a lot to regain the lost labour utilisation in the course of the GFC (Table 4).

For all countries, reducing economic marginalisation of particular social groups and less-skilled workers may reduce political conflict and may help with more continuous productivity improvement. This is important, indeed essential to the European project, if we see that for many countries, joining Europe is in its economic dimension ultimately about raising income levels. A coordinated and symmetric structural policy programme would facilitate this effort, because the increase of export capacity in the South would be better matched by increasing import demand from the North.

The fact that crises occur and are hard to address does not imply that it was a mistake to give up currencies – the economic benefits of joining the Eurozone are much larger than the periodic costs, as long as the sustainability conditions for private and public household as well as corporate debt are as a whole met.<sup>31</sup> Getting the incentives aligned for sustainable

---

<sup>31</sup> A good example for how domestically owned structural reforms and membership in the Eurozone can reinforce each other is Slovakia (Fidrmuc and Wörgötter, 2013)

fiscal policy settings would sharply reduce the risk of crisis and more frequent plunges into austerity, economic marginalisation and political conflict.

German leadership in reform will also imply recognition that EMU is not simply a burden but has also carried substantial economic benefits for the anchor economy. Providing economic stimulus to the Eurozone through structurally-induced stronger growth in Germany may further shift the balance in the macroeconomic discussion away from fiscal policy as the source of external demand, helping Europe to move to a more consensual perspective on sustainable macroeconomic policy. Stronger fiscal transfer mechanisms seem unlikely given historical precedent and fiscal sovereignty's association with national identity and need for political parties (and their underlying distributional coalitions) to have some political tools to exploit once in office. There remains a role for greater fiscal integration, but we would like to see this more tightly linked to raising future potential growth rates. In particular, fiscal policy would become more sustainable with clearer incentives for reducing the debt to GDP ratio below 60% and disincentives to crossing 60% debt to GDP ratio from below. Once fiscal balances are sustainable larger fluctuations of the deficit could be more easily tolerated. However, this will only become operational if the EU could give up its "equal treatment" principle.

German policy makers have recognised the broader value of stepping up fiscal spending for domestic purposes and have moved in this direction. This makes economic sense for the German economy too, especially where productivity can rise with fiscally-supported wages and with better public infrastructure (taking pressure off the German output gap). It is important to reduce Germany's external surpluses, but this should best be achieved by increasing domestic sector productivity, raising import demand and creating positive spillovers for the potential growth of the neighbours, rather than through deterioration of fiscal balances. Smaller fiscal deficits and less private borrowing financed consumption in those neighbours would of course weigh against their real appreciation and reduce the size of Germany's trade surpluses.

Finally, these steps will balance the political tendencies toward protectionism that are rife within the Eurozone. A more comprehensive resolution to these challenges, and reduction



in the temptation to be more Keynesian at a continental level, would be to rethink global economic relationships and the investment destinations of Europe's competitive creditors.

## References

- Adrian, Tobias and Hyun Song Shin, Financial Intermediaries and Monetary Economics, *Federal Reserve Bank of New York, Staff Reports*, Number 398, October 2009.
- Artis, Michael J. (1991), Review Essay: One Market, One Money: An Evaluation of the Potential Benefits and Costs of Forming an Economic and Monetary Union, *Open Economies Review* 2(3), 315--321.
- Banerji, Angana & Valerio Crispolti & Era Dabla-Norris & Romain A Duval & Christian H Ebeke & Davide Furceri & Takuji Komatsuzaki & Tigran Poghosyan, 2017. "Labor and Product Market Reforms in Advanced Economies; Fiscal Costs, Gains, and Support," IMF Staff Discussion Notes 17/03, International Monetary Fund.
- Barth, James, R., R. Dan Brumbaugh, and James A. Wilcox. 2000. "Policy Watch: The Repeal of Glass-Steagall and the Advent of Broad Banking." *Journal of Economic Perspectives*, 14 (2): 191-204.
- Bayer, Kurt and Andreas Breitenfellner, 2018. "What is the appropriate role of structural reforms in E(M)U deepening?," Focus on European Economic Integration, Oesterreichische Nationalbank (Austrian Central Bank), issue Q3-18, pages 102-112.
- Bayoumi, T. and B. Eichengreen, 1997 "Ever closer to heaven? An optimum-currency-area index for European countries." *European Economic Review*, 41 (3-5), pp. 761-770.
- Begg, Ian, Anette Bongardt, Kalypso Nicolaidis and Francisco Torres (2015), EMU and Sustainable Integration, *Journal of European Integration*, Vol. 37, No.7, pp. 803-816.
- Berka, Martin, Devereux, Michael B. and Engel, Charles, Real Exchange Rates and Sectoral Productivity in the Eurozone, *NBER, Working Paper* 20510.
- Blanchard, Olivier and Justin Wolfers (2000), The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence, *The Economic Journal*, Vol. 110, No. 462, Conference Papers (March 2000), pp. C1-C33.
- Bleaney, M. and Yin, L. (2018), Price Adjustment in Currency Unions: Another Dimension to the Endogeneity of the Optimum Currency Area Criteria?. *Oxford Bulletin of Economic Statistics*.
- Blanchard, Olivier, and Francesco Giavazzi (2002), "Current Account Deficits in the Euro Area: The End of the Feldstein-Horioka Puzzle?" *Brookings Papers on Economic Activity*, no. 2, pp 147-86.

Bordon A.R., Ebeke C., Shirono K. (2018) When Do Structural Reforms Work? On the Role of the Business Cycle and Macroeconomic Policies. In: de Haan J., Parlevliet J. (eds) Structural Reforms. Springer, Cham.

Borgy, Vladimir and Laubach, Thomas and Mésonnier, Jean-Stéphane and Renne, Jean-Paul. (2011), Fiscal Sustainability, Default Risk and Euro Area Sovereign Bond Spreads Markets. Banque de France Working Paper No. 350.

Breuss, Fritz (2017), The United States-Euro Area Growth Gap Puzzle, WIFO Working Papers 541, WIFO.

Brixiova, Z. Morgan, M.H. and Wörgötter, A. (2010), On The Road to Euro: How Synchronized Is Estonia with the Euro zone?, *The European Journal of Comparative Economics* Vol. 7, n. 1, pp. 203-227.

Brixiova, Z., L. Vartia and Wörgötter, A. (2010), Capital flows and the boom–bust cycle: The case of Estonia. *Economic Systems*, Volume 34, Issue 1, March 2010, Pages 55-72.

Caselli, Francesca and Philippe Wingender (2018), Bunching at 3 Percent: The Maastricht Fiscal Criterion and Government Deficits, IMF WP/18/182.

Coricelli, Fabrizio, Alex Cukierman and Alberto Dalmazzo, 2006. "Monetary Institutions, Monopolistic Competition, Unionized Labor Markets and Economic Performance," *Scandinavian Journal of Economics*, Wiley Blackwell, vol. 108(1), pages 39-63, March.

Dolls, Mathias, Clemens Fuest, Carla Krolage, Florian Neumeier, Daniel Stöhlker (2018), Incentivising structural reforms in Europe? A blueprint for the European Commission's Reform Support Programme, EconPol POLICY BRIEF, February, Vol. 3/14.

Dornbusch, R. (1976), Exchange Rate Expectations and Monetary Policy, *Journal of Political Economy*, Vol 64(6), 1161-1176.

Dornbusch, Rudiger (1983), Flexible Exchange Rates and Interdependence, IMF Staff Papers, Vol. 30(1), March, 3-38.

EEC Commission (1990), One market, one money: an evaluation of the potential benefits and costs of forming an economic and monetary union. *European Economy*, No. 44.

Eichengreen, B. (1997), *European Monetary Integration: Theory, Practice, and Analysis*, The MIT Press, Cambridge Massachusetts.

European Commission (2018), 2018 European Semester: Assessment of progress on structural reforms, prevention and correction of macroeconomic imbalances, and results of in-depth reviews under Regulation (EU) No 1176/2011.

Fabbrini, S. (2013), Intergovernmentalism and Its Limits: Assessing the European Union's Answer to the Euro Crisis. *Comparative Political Studies*, Volume: 46(9): 1003-1029.

Fernández, Cristina and Pilar García Perea (2015), The impact of the euro on euro area GDP per capita, Working Papers 1530, Banco de España.

Fidora, Michael, Claire Giordano and Martin Schmitz (2018), Real Exchange Rate Misalignments in the Euro Area, Bank of Italy Temi di Discussione (Working Paper) No. 1162.

Fidrmuc, Jarko and Andreas Wörgötter (2013), Slovakia: The Consequences of Joining the Euro Area before the Crisis for a Small Catching-up Economy, CESifo Forum, Ifo Institute - Leibniz Institute for Economic Research at the University of Munich, vol. 14(1), 57-63.

Franks, Jeffrey R. & Bergljot B Barkbu & Rodolphe Blavy & William Oman & Hanni Schoelermann, 2018. "Economic Convergence in the Euro Area: Coming Together or Drifting Apart?," IMF Working Papers 18/10, International Monetary Fund.

Gächter, Martin & Gruber, Alexander & Riedl, Aleksandra, 2016. "Wage divergence, business cycle co-movement and the currency union effect," Economics Working Paper Series 1605, University of St. Gallen, School of Economics and Political Science.

Giavazzi, F and Wyplosz, C (2015), EMU: Old Flaws Revisited, *Journal of European Integration*, Vol.37. No.7., pp.723-737.

Giersch, Herbert (1985) : Eurosclerosis, Kieler Diskussionsbeiträge, No. 112, ZBW - Deutsche Zentralbibliothek für Wirtschaftswissenschaften, Leibniz Informationszentrum Wirtschaft, Kiel, Hamburg.

Grauwe, Paul De (2011), Managing a Fragile Eurozone, CESifo Forum, ISSN 2190-717X, Ifo Institut für Wirtschaftsforschung an der Universität München, München, Vol. 12(2): 40-45.

Hašková, S. and Vochozka, M. (2018), Duality in Cyclical Trends in European Union Confirmed. *SAGE Open*, January-March 2018: 1 –7.

Hochreiter, Eduard and Winckler, Georg, 1995. "The advantages of tying Austria's hands: The success of the hard currency strategy," *European Journal of Political Economy*, Elsevier, vol. 11(1), 83-111, March.

IMF (2017). Country Report No. 17/236 EURO AREA POLICIES SELECTED ISSUES.

Jones, E and Torres F (2015), An Economics Window on an Interdisciplinary Crisis, *Journal of European Integration*, Vol.37, No.7, pp713-722.

Jones, E (2015), Getting the Story Right: How you should choose between different Interpretations of the European Crisis (And Why You Should Care), *Journal of European Integration*, Vol. 37(7): 817-832.

Jones, E. (2016), Competitiveness and the European Financial Crisis, in J.A.Caporaso and Martin Rhodes, *The Political and Economic Dynamics of the Eurozone Crisis*, Ch. 4, 79-99, Oxford University Press, Oxford.

Kazuasa Iwata, Sébastien Jean, Christian Kastrop, Chris Loewald, and Nicolas Véron (2018). T20, Resilience and Inclusive Growth. *Economics: The Open-Access, Open-Assessment E-Journal*, 12 (2018-38): 1–10.

Kopits, George (2011), “Independent Fiscal Institutions: Developing Good Practices”, *OECD Journal on Budgeting*, Vol. 11/3.

Landmann, O. (2018), On the Logic of Fiscal Policy Coordination in a Monetary Union. *Open Economies Review* 29:1, 69-87.

Manganelli, Simone and Wolswijk, Guido, Market Discipline, Financial Integration and Fiscal Rules: What Drives Spreads in the Euro Area Government Bond Market? (April 2007). ECB Working Paper No. 745.

OECD (2018), *OECD Economic Surveys: Euro Area 2018*, OECD Publishing, Paris.

Ramskogler, P. (2012), Is there a European wage leader? Wage spillovers in the European Monetary Union. *Cambridge Journal of Economics* 2012, 36, 941–962.

Regan, A. (2017). The imbalance of capitalisms in the Eurozone: Can the north and south of Europe converge? *Comparative European Politics*, 15, 969-990.

Scharpf, Fritz W. (2018). There is an alternative: A two-tier European currency community, MPIfG Discussion Paper, No. 18/7, Max Planck Institute for the Study of Societies, Cologne.

Six, Jean-Michel and Sarah Limbach, The potential impact of higher wage settlements on Germany’s trade balance, *S&P Global Ratings, Economic Research*, 24 April, 2018.

Staehr, K. (2016), Capital flows and growth dynamics in central and eastern Europe, *Eesti Bank Working Paper Series* 10/2016.

Theurl, Th. (1992), Eine gemeinsame Währung für Europa: 12 Lehren aus der Geschichte (A common currency for Europe: 12 lessons from history). *Geschichte und Ökonomie*, Band 1, Innsbruck.

Tompson, W. and T. Dang (2010), “Advancing Structural Reforms in OECD Countries: Lessons from Twenty Case Studies”, *OECD Economics Department Working Papers*, No. 757, OECD Publishing, Paris.

Vines, D. (2015), Impossible Macroeconomic Trinity: The Challenge to Economic Governance in the Eurozone, *Journal of European Integration*, Vol.37, No.7, pp.861-874.

White, William R (2017), Conducting Monetary Policy in a Complex, Adaptive Economy: Past Mistakes and Future Possibilities, *Credit and Capital Markets*, Volume 50, Issue 2, pp.213-255. Scientific Papers.

Wörgötter, A. (1987), Beschäftigungseffekte von Nominallohnänderungen in einer kleinen offenen Volkswirtschaft (Employment effects of nominal wage changes in a small open

economy), in G.Bombach, B.Gahlen, A.E. Ott, Arbeitsmärkte und Beschäftigung – Fakten, Analysen, Perspektiven, 331-346. J.C.B.Mohr (Paul Siebeck), Tübingen.

## Appendix

A model for different adjustments to foreign and domestic shocks (Wörgötter, 1987; Dornbusch, 1983)

(1) $y$	$= a \cdot \text{rer} - b \cdot \text{rir} + f$	IS-schedule
(2) $m$	$= q + y - c \cdot \text{nir}$	LM-schedule
(3) $q$	$= \beta \cdot w + (1 - \beta) \cdot (\text{ner} + p^f)$	Consumer prices
(4) $\text{rir}$	$= \text{nir} - \delta \cdot (q)$	Real interest rate
(5) $\text{nir}$	$= \text{nir}^f + \delta \cdot (\text{ner})$	Nominal interest rate arbitrage
(6) $\delta \cdot (w)$	$= \gamma \cdot y + \alpha \cdot (q - w)$	Wage determination

Variable list:

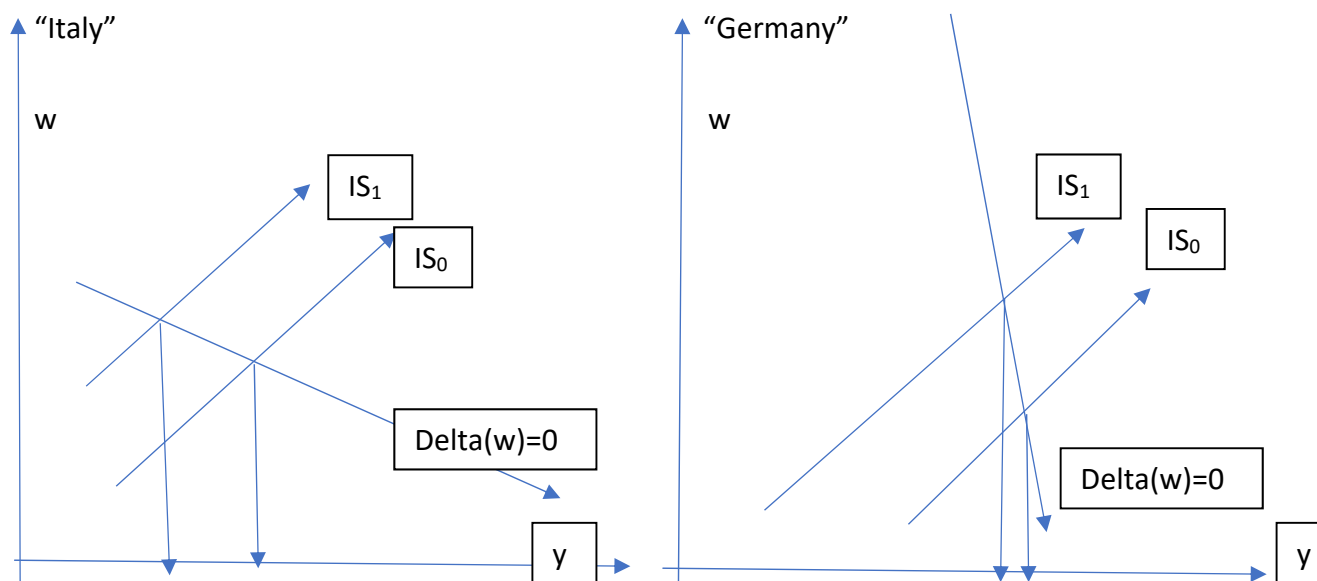
$y$	Output gap (deviation from trend)
$\text{rer}$	Real exchange rate
$\text{rir}$	Real interest rate
$f$	exogenous demand shock
$m$	Money demand
$\text{nir}$	Nominal interest rate
$\text{nir}^f$	Foreign nominal interest rate
$q$	Domestic consumer price level
$p^f$	Foreign price level
$\text{ner}$	Nominal exchange rate

All variables (except interest rates) are logs and deviations from an exogenous trend. Wages are slow-moving and need time to change while prices, output, interest rates and exchange rates can change instantaneously. A dynamic feature of this model is the possibility of overshooting output and exchange rates, because the resulting system of differential equations for  $w$  and  $\text{rer}$  has a saddlepoint equilibrium with only one stable adjustment path.

The main use of this model is to allow for different responses to shocks, depending on the parameters of the model. Figure A.1 shows that the steady state after adjustment to a demand side shock (shift of the IS curve from  $IS_0$  to  $IS_1$ ) depends on the slope of the  $\delta(w)=0$  curve. A small reaction of wages to the cyclical position (small  $\gamma$ ) and a large weight of real wage stickiness (large  $\alpha$ ) make the  $\delta(w)=0$  schedule flatter and a negative demand shock will generate a larger output fall.

In the extreme case the  $\delta(w)=0$  schedule is vertical. This is the case if wages adjust immediately.

Figure A.1: The “Italian” and “German” economy after the adjustment to a shock



Empirical estimates

In order to test the observed differences (Tables 2-4 and Figure 2) between the German and Italian economy econometrically some modifications of the specified IS and Phillips curve were undertaken:

- 1) Real wages were introduced into the IS curve in order to reflect the importance of domestic demand.
- 2) The real exchange rate is also introduced into the Phillips curve as a second adjustment channel of wage setting.

The results of these modified equations (1) and (6) for Germany and Italy confirm that the two economies are driven by different forces.

For Germany all coefficients in the slightly modified IS curve are insignificant. The insignificant F-Test indicates that the model has no explanatory power. The output gap does not co-move with the real exchange rate, real wages, the real interest rate or the change of the cyclically adjusted budget balance. In terms of Figure A1 the IS curve is vertical.

For Italy on the contrary, the independent variables generate explanatory power and the real exchange rate as well as the real wage are highly significant. The real interest rate is marginally significant at a 10% confidence level. The significant real wage indicates the importance of domestic income for the output level.

Table A1: An IS-Curve for Germany and Italy 2001-2017

Dependent Variable: GER_YGAP				
Method: Least Squares				
Date: 02/01/19 Time: 12:53				
Sample (adjusted): 2001 2017				
Included observations: 17 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(GER_ULC(-1))	-8.932501	16.71002	-0.534560	0.6036
GER_RI	-0.779079	0.532071	-1.464238	0.1711
GER_RI(-1)	0.654655	0.697805	0.938164	0.3683
GER_GBAL-GER_GBAL(-1)	0.097352	0.336063	0.289685	0.7774
LOG(GER_CPI(-1))-LOG(GER_COE(-1))	-11.90276	20.88660	-0.569876	0.5802
C	41.37397	77.14466	0.536317	0.6024
R-squared	0.286042	Mean dependent var		-0.352705
Adjusted R-squared	-0.038485	S.D. dependent var		1.647017
S.E. of regression	1.678410	Akaike info criterion		4.144135
Sum squared resid	30.98767	Schwarz criterion		4.438211
Log likelihood	-29.22515	Hannan-Quinn criter.		4.173367
F-statistic	0.881413	Durbin-Watson stat		1.244952
Prob(F-statistic)	0.524673			

Dependent Variable: ITA\_YGAP  
Method: Least Squares  
Date: 02/01/19 Time: 12:53  
Sample (adjusted): 2001 2017  
Included observations: 17 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(ITA_ULC(-1))	-21.89569	7.716168	-2.837638	0.0161
ITA_RI	-1.170402	0.621691	-1.882612	0.0865
ITA_RI(-1)	-0.404000	0.650127	-0.621417	0.5470
ITA_GBAL-ITA_GBAL(-1)	-0.420258	0.524627	-0.801061	0.4401
LOG(ITA_CPI(-1))-LOG(ITA_COE(-1))	-100.5759	16.23573	-6.194729	0.0001
C	102.9620	35.72861	2.881781	0.0149
R-squared	0.809160	Mean dependent var		-0.874596
Adjusted R-squared	0.722414	S.D. dependent var		3.191912
S.E. of regression	1.681703	Akaike info criterion		4.148055
Sum squared resid	31.10937	Schwarz criterion		4.442131
Log likelihood	-29.25847	Hannan-Quinn criter.		4.177287
F-statistic	9.327979	Durbin-Watson stat		1.515468
Prob(F-statistic)	0.001119			

Variable list:

GER and ITA stand for German and Italian variables, LOG is for the natural logarithm and (-1) indicates a one-year lag. Data are from the OECD Economic Outlook 104 Statistical Annex.

ULC Real exchange rate based on unit labour costs  
RI Real interest rate  
GBAL Cyclically adjusted general government balance  
CPI Consumer price index  
COE Compensation per employee  
YGAP Output gap  
PCOE Relative change of compensation per employee



For the Phillips curve (6) the estimated coefficients for Germany and Italy are also different. While the output gap enters significantly in the Italian Phillips curve, it is the real exchange rate which drives wages in Germany. This form of internal devaluation can replace unemployment to keep wages in line with competitiveness. In other words, Italy needs austerity (a negative output gap) to maintain or restore competitiveness, while in Germany this role is played by a wage determination process, which maintains international competitiveness with low or no output costs.

Table A2: A Phillips-Curve for Germany and Italy 2001-2017

Dependent Variable: GER\_PCOE

Method: Least Squares

Date: 02/01/19 Time: 12:53

Sample (adjusted): 2001 2017

Included observations: 17 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GER_YGAP	0.216325	0.109388	1.977586	0.0714
GER_YGAP(-1)	-0.249423	0.118270	-2.108931	0.0566
LOG(GER_CPI(-1))-LOG(GER_COE(-1))	-7.566905	7.476256	-1.012125	0.3315
LOG(GER_ULC(-1))	-13.39081	3.993972	-3.352755	0.0058
C	64.10620	18.61037	3.444650	0.0049
R-squared	0.629817	Mean dependent var		1.728856
Adjusted R-squared	0.506423	S.D. dependent var		0.947903
S.E. of regression	0.665950	Akaike info criterion		2.264723
Sum squared resid	5.321867	Schwarz criterion		2.509786
Log likelihood	-14.25015	Hannan-Quinn criter.		2.289083
F-statistic	5.104099	Durbin-Watson stat		1.803304
Prob(F-statistic)	0.012298			

Dependent Variable: ITA\_PCOE

Method: Least Squares

Date: 02/01/19 Time: 12:53

Sample (adjusted): 2001 2017

Included observations: 17 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ITA_YGAP	0.369056	0.127483	2.894938	0.0135
ITA_YGAP(-1)	-0.073508	0.157224	-0.467540	0.6485
LOG(ITA_CPI(-1))-LOG(ITA_COE(-1))	-1.282637	18.70590	-0.068569	0.9465
LOG(ITA_ULC(-1))	-2.644068	4.930469	-0.536271	0.6016
C	13.94935	22.49674	0.620061	0.5468
R-squared	0.677276	Mean dependent var		1.586259
Adjusted R-squared	0.569701	S.D. dependent var		1.285478
S.E. of regression	0.843238	Akaike info criterion		2.736793
Sum squared resid	8.532598	Schwarz criterion		2.981856
Log likelihood	-18.26274	Hannan-Quinn criter.		2.761153
F-statistic	6.295857	Durbin-Watson stat		1.799145
Prob(F-statistic)	0.005721			



## Published Working Papers

- WP 03/2019:** Endogenously (Non-)Ricardian Beliefs
- WP 02/2019:** Optimal time allocation in active retirement
- WP 01/2019:** Do monetary unions dream of structural reforms?
- WP 02/2018:** Aggregate public-private remuneration patterns in South Africa
- WP 01/2018:** Health insurance, endogenous medical progress, and health expenditure growth
- WP 08/2017:** Medical Progress, Demand for Health Care, and Economic Performance
- WP 07/2017:** You can't always get what you want? A Monte Carlo analysis of the bias and the efficiency of dynamic panel data estimators
- WP 06/2017:** Robots and the skill premium: an automation-based explanation of wage inequalities
- WP 05/2017:** Boosting Taxes for Boasting about Houses: Status Concerns in the Housing Market
- WP 04/2017:** The Marriage Gap: Optimal Aging and Death in Partnerships
- WP 03/2017:** Redistributive effects of the US pension system among individuals with different life expectancy
- WP 02/2017:** The Impact of Climate Change on Health Expenditures
- WP 01/2017:** Optimal investment and location decisions of a firm in a flood risk area using Impulse Control Theory
- WP 11/2016:** Hyperbolic Discounting Can Be Good For Your Health
- WP 10/2016:** On the long-run growth effect of raising the retirement age
- WP 09/2016:** The importance of institutional and organizational characteristics for the use of fixed-term and agency work contracts in Russia
- WP 08/2016:** A Structural Decomposition Analysis of Global and National Energy Intensity Trends
- WP 07/2016:** Natural Disasters and Macroeconomic Performance
- WP 06/2016:** Education, lifetime labor supply, and longevity improvements
- WP 05/2016:** The Gender Gap in Mortality: How Much Is Explained by Behavior?
- WP 04/2016:** The implications of automation for economic growth and the labor share of income
- WP 03/2016:** Higher education and the fall and rise of inequality
- WP 02/2016:** Medical Care within an OLG economy with realistic demography
- WP 01/2016:** The Quest for Status and R&D-based Growth
- WP 04/2015:** Modelling the interaction between flooding events and economic growth
- WP 03/2015:** Revisiting the Lucas Model

More working papers can be found at <http://www.econ.tuwien.ac.at/wps/>

Please cite working papers from the ECON WPS like this example:

Freund, I., B. Mahlberg and A. Prskawetz. 2011. "A Matched Employer-Employee Panel Data Set for Austria: 2002-2005." *ECON WPS 01/2011*. Institute of Mathematical Methods in Economics, Vienna University of Technology.

**The Series “Vienna University of Technology Working Papers  
in Economic Theory and Policy” is published by the**

Research Group Economics  
Institute of Statistics and Mathematical Methods in Economics  
Vienna University of Technology

## **Contact**

Research Group Economics  
Institute of Statistics and Mathematical Methods in Economics  
Vienna University of Technology

Wiedner Hauptstraße 8-10  
1040 Vienna  
Austria

## **Editorial Board**

Alexia Fürnkranz-Prskawetz  
Hardy Hanappi  
Franz Hof

Phone: +43-1-58801-1053- 1  
Fax: +43-1-58801-1053-99  
E-mail: [wps@econ.tuwien.ac.at](mailto:wps@econ.tuwien.ac.at)