

## **THE UNBALANCED MONETARY UNION**

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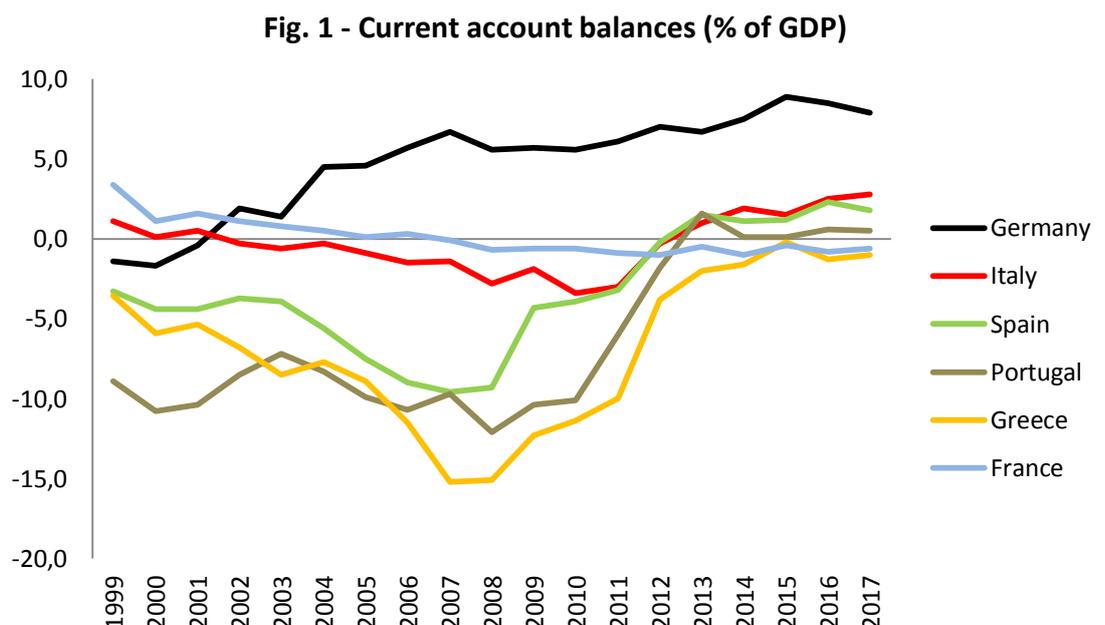
At the root of the Eurozone crisis was the building up of competitiveness gaps, current account imbalances and associated capital flows, toward the deficit countries, whose sudden stop kick-started the crisis. In this process the rise of the German surplus was the main driving force. After eight years, while the crisis countries have zeroed their deficits or transformed them into surpluses, the imbalance of Germany has kept increasing. Estimates from various sources point to an undervaluation of the real exchange rate of this country. In this paper it is argued that such undervaluation is the consequence of unadjusted German internal imbalances. Germany benefited from a biased technological improvement in the traded-goods sector that would have required a real appreciation to restore the internal and external equilibrium. Lacking the exchange rate, the real appreciation had to be achieved through an acceleration of German inflation compared to the other member countries. Yet labor wedge shocks, causing persistent wage moderation, turned off the adjustment mechanism and things went the opposite way. The distance of the German real exchange rate relative to an equilibrium value has enlarged even more in the last few years. The failure to correct this imbalance constitutes a persistent factor of economic and political fragility of the European Monetary Union.

### ***The uneradicated roots of the Eurozone crisis***

According to a consensus view (Baldwin and Giavazzi 2015), the Eurozone crisis is not rooted in public spending profligacy and swelling government debts. It is instead caused by the building up of competitiveness gaps within the area, current account imbalances and the associated capital flows whose sudden stop gave the kick-start to the crisis. Although they share this view, some analysts (e.g., Bofinger 2015 and Wren Lewis 2015) find it incomplete. The reason is that it focuses only on the deficit countries and neglects the role of Germany, whose persistent wage moderation undercut other members of the currency area and contributed to the emergence of intra-Eurozone imbalances.

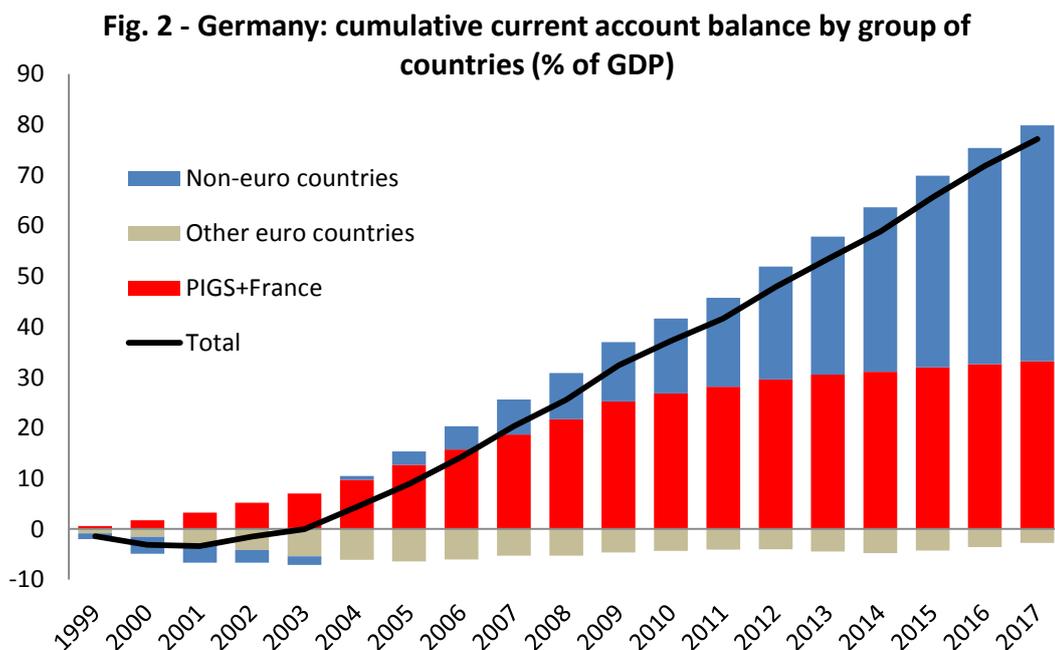
Despite such analyses, the lively debate on the Euro-area governance reform, centered on the question of the risks associated with sovereigns and banks (Pisani Ferry 2018), completely overlooks this issue. Does this mean that, eight years after the start of the euro crisis, the problem of intra-Eurozone imbalances has been overcome? The evidence does not show this: imbalances are still present, only partially attenuated, and their root causes seem fundamentally uncorrected. Let us recall a few points.

- The German current account surplus kept rising. In 2017 it was 8% of GDP (5.6% in 2009, fig. 1). On the other hand, those that once were the deficit countries have adjusted their external balances since 2009, zeroing the deficits (Greece) or reversing them into surpluses (Italy, Spain and Portugal). It is a matter of debate whether such adjustments were induced by structural enhanced productivity (Esposito and Messori 2018 find that this was not the case) and whether they depended on cyclical factors (Fabiani, Federico and Felettigh 2016 find that, in the case of Italy, the correction was only partly cyclical).



Source: computations based on Eurostat data

- Since 2009 there has been a change of composition of the rising German surplus, with a larger share determined by trade flows with non-Euro countries (Micossi, D’Onofrio and Peirce. 2018). However, the German surplus vis-à-vis the “deficit countries” did not disappear and kept on adding to the past surpluses, consolidating the huge net credit position that Germany held towards these economies. In 2017 the German cumulative surplus towards the “deficit countries” (including France) was more than 40% of the total German cumulative surplus (fig. 2). In relation to this, I maintain that the change of geographical composition of the German current account balance reflected not so much the virtues of an internal Eurozone adjustment as the vice of a shift of unsolved intra-area problems outside the borders of the currency union. The unrelenting rise of the German excess of national savings was only re-directed toward the more rapidly growing economies outside the Eurozone, which was partly the result of a currency that was weak for the German economy (see the following point). Consequently, the overall Euro-area external balance, in equilibrium in 2009, rose to 3.2% of GDP in 2017 (more than twice the Chinese surplus in terms of GDP).



PIGS countries are Portugal, Italy, Greece and Spain. Source: computations based on Bundesbank data

- Estimates of misalignments of the real effective exchange rates, provided by various sources and based on different methodologies, confirm the persistent divergence of the competitive positions between an undervalued Germany and the overvalued “deficit countries” (tab. 1). What is even more relevant is that these estimates reveal the rather large bilateral misalignments of Germany vis-à-vis the other Eurozone countries. The measure of bilateral misalignments is approximated by the percentage differences

between the real effective exchange rate misalignments for any couple of countries. Accordingly, the IMF assessments imply a real undervaluation of Germany by 10-28% with respect to France and by 10-30% with respect to Italy and Spain. The CEPII estimates entail a bilateral German undervaluation towards Italy and Spain of a size falling within the IMF ranges (15% and 18% respectively). Moreover, it indicates that Germany is undervalued (by about 20%) with respect to Portugal and Greece.<sup>1</sup>

Tab. 1 – Real effective exchange rate misalignments with respect to equilibrium levels in 2017 (- = undervaluation; + = overvaluation)						
	Germany	France	Italy	Spain	Portugal	Greece
IMF	-20%/-10%	0/+8%	0/+10%	+3/+10%	n.a.	n.a.
CEPII-186 countries	-8.7%	-1.4%	+6.7%	+10.2	n.a.	n.a.
CEPII-30 countries	-11.8%	-5.9%	+2.0%	+4.9	+7.8%	+9.7%

Source: IMF, July 2018; CEPII, estimates based on Couharde, Delatte, Grekou, Mignon and Morvillier (2017)

The estimates of real misalignments are obviously affected by margins of uncertainty. Nonetheless, they provide quite a homogeneous signal: the undervaluation of the German real exchange rate. I argue that such undervaluation is the consequence of unadjusted German internal imbalances. Germany benefited from a biased technological improvement in the traded-goods sector. This required a real appreciation to restore the internal and external equilibrium. Lacking the exchange rate, the real appreciation had to be achieved through an acceleration of German inflation compared to the other member countries. Yet the mechanisms of adjustment were all turned off in the monetary union and things went the opposite way.<sup>2</sup>

### ***Eurozone imbalances in a Ricardian framework***

To clarify the nature of imbalances within the Eurozone and the mechanisms that should restore equilibrium we frame the issue in the Ricardian model of two countries and a multiplicity (actually a continuum) of goods developed by Dornbusch, Fischer and Samuelson (1977).

<sup>1</sup> Differences in weights used to compute the real effective exchange rates of each country make this method a proxy of bilateral misalignments, although a reasonable one. Real effective exchange rate misalignments provided by other sources (Giordano 2018) show that the real implicit bilateral undervaluation of Germany is still observable in 2017 against Italy and Spain, but it is more contained compared to the estimates deduced from IMF and CEPII sources.

<sup>22</sup> This view was first exposed at the beginning of the euro crisis (e.g., De Nardis 2010), underlining the depressive impulse that an uncorrected German internal imbalance diffused throughout the area and the risks of dissatisfaction that an asymmetric current account adjustment, whose burden was exclusively assigned to the deficit countries, could induce among European citizens. It is discouraging, to say the least, to verify that it still persists in the same terms eight years on and that the risks of dissatisfaction that were noticed at the start of the decade have by now materialized and have found their variegated but prominent political expressions in some member countries.

Let the two countries sharing the same currency be named Germany and Italy. Figure 3 shows the curves representing the basic supply and demand schedules governing the general equilibrium of this two-country monetary union. The horizontal axis represents the traded goods. They are ordered from left to right in accordance with diminishing German relative efficiency (compared to Italy): near the origin of the horizontal axis are the goods for which Germany is relatively more productive, and far from the origin are the goods for which Italy is relatively more productive.<sup>3</sup> The vertical axis measures the relative efficiency of Germany (compared to Italy) in producing each traded good. Defining as  $a_z^G$  and  $a_z^I$  the unit labor requirements to produce a generic good  $z$  respectively in Germany and Italy, the German relative efficiency in such a good is  $a_z^I/a_z^G$ . Accordingly, going up the vertical axis, the German comparative advantage (i.e. the German relative productivity compared to Italy) becomes larger; going down the axis, the Italian comparative advantage is stronger. The vertical axis also represents the ratio between German wage ( $w^G$ ) and Italian wage ( $w^I$ ). This ratio ( $w^G/w^I$ ) is the relative wage that determines, given the technological differences between the two nations, which goods are produced by which country or, in other terms, the efficient specialization of the two Eurozone economies.

In this space the downward sloping curve is the supply side of the model. It measures the extension (range of goods) of German specialization (and, symmetrically, of Italian de-specialization): how many goods Germany produces. It slopes downward because as German relative wage decreases, this country gains a comparative advantage in a larger range of goods (moving right along the horizontal axis): there are more traded goods for which Germany has a cost advantage with respect to Italy (for which  $w^G a_z^G < w^I a_z^I$  or, alternatively,  $w^G/w^I < a_z^I/a_z^G$ ) and that it can hence produce efficiently and export to Italy.

To identify the equilibrium relative wage determining Germany's (and Italy's) specialization, the model has to be complemented with a demand side, which is represented by the upward sloping curve. Along this curve the German labor market is in equilibrium, as is the Italian one. The curve slopes upward because as more made-in-Germany goods are demanded by consumers of the Eurozone (German and Italian consumers), the higher is the demand for labor in that country and the higher is the German relative wage maintaining the labor market in equilibrium. An alternative interpretation of the upward sloping curve identifies it as the schedule along which trade balance is in equilibrium (in Germany and, hence, in Italy). It slopes upward because an increase of the demand for the goods produced in Germany at an unchanged relative wage would raise this country's exports and lower its imports. The resulting trade surplus would be corrected by an increase of the German relative wage, reducing its exports and raising its imports.

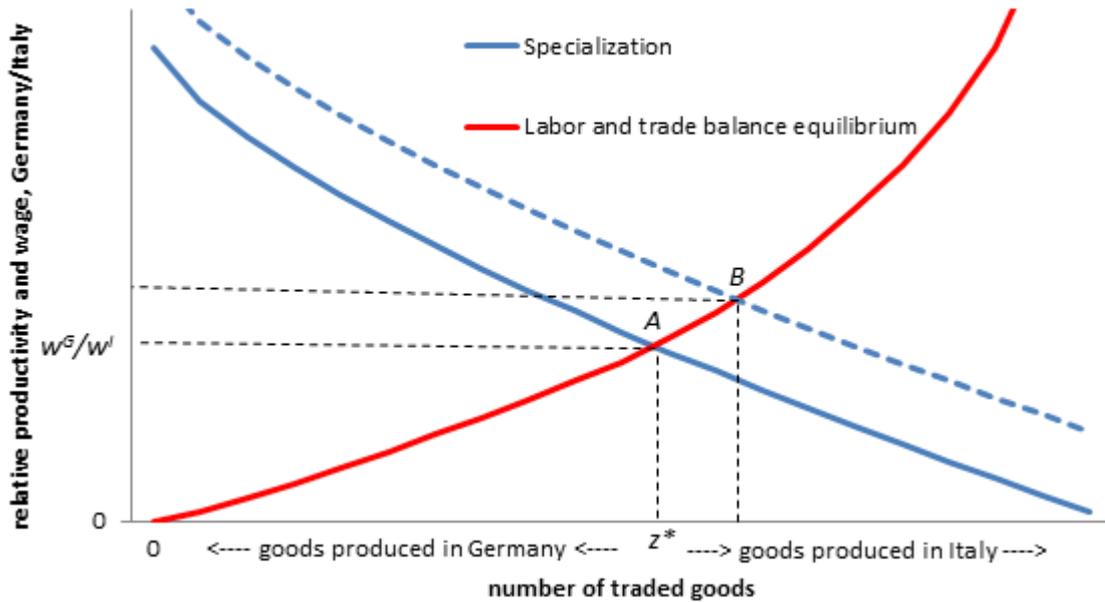
The combination of the demand and supply sides identifies (A in the figure) the equilibrium relative wage in which the Eurozone is efficiently specialized, the trade balances are in equilibrium and labor markets are at their maximum employment capacity. Hence, at equilibrium  $w^G/w^I = a_{z^*}^I/a_{z^*}^G$ , where

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<sup>3</sup> In particular, the horizontal axis shows the unit interval (0,1) so that each point on the interval corresponds to a particular good indexed, from left to right, in accordance with the diminishing German relative productivity.

$z^*$  is the threshold good separating the goods efficiently produced in Germany (all the goods which are indexed by  $z \leq z^*$ ) from those efficiently produced in Italy (all those goods indexed by  $z \geq z^*$ ).

**Fig. 3- Equilibrium in the traded goods sector in Germany and Italy**



This framework allows us to highlight the correcting mechanism coming into play whenever there is a change in technology in one of the two countries. If Germany benefits from a uniform technological progress in the production of traded goods (there is a reduction of the German unit labor requirement,  $a^G_z$ , for all  $z$ ), this translates in an upward shift of the specialization schedule as indicated by the dashed curve in figure 3. At the initial relative wage, Germany enlarges the range of goods for which it has lower costs than Italy and experiences a trade surplus (and Italy a trade deficit). The resulting excess demand for German goods induces an increase of the equilibrium relative wage that serves to restore trade balance equilibrium and to partially offset (but not to eliminate) the gain in cost competitiveness brought about by technological progress. At the new equilibrium ( $B$ ) both relative wage (vertical axis) and the range of goods (horizontal axis) are higher in Germany than before the technological improvement.

To see what happens to relative prices between Germany and Italy it is necessary to consider that consumers of both countries demand, in addition to traded goods, a separate range of goods which are not traded internationally, whatever the cost of production. The consumer price level in the two countries ( $P^G$  and  $P^I$ ) may be expressed as an expenditure weighted index of importable ( $P_m$ ), exportable ( $P_x$ ) and non-traded goods ( $P_n$ ). Therefore, the cost of living indexes of Germany and Italy are, respectively<sup>4</sup>:

$$P^G = P_m^{G(k-v)} P_x^G P_n^{G(1-k)}; \quad P^I = P_m^{I(k-v)} P_x^I P_n^{I(1-k)}$$

<sup>4</sup> These cost of living indexes may be obtained from consumers' utility maximization with Cobb-Douglas preferences.

where  $k$  is the fraction of spending falling on traded goods (and  $1-k$  is the fraction spent on non-traded goods) and  $v$  is the share of spending in traded goods falling on those produced at home (respectively in Germany and Italy). In this framework, the two countries face the same traded goods prices (there are no tariffs and transaction costs) and have the same expenditure pattern.<sup>5</sup> Accordingly, the relative price level between Germany and Italy depends solely on the price level of non-traded goods

$$P^G/P^I = (P_n^G/P_n^I)^{(1-k)}$$

With prices equal to unit costs, we have  $P_n^G = w^G x^G$  and  $P_n^I = w^I x^I$  (where  $x^G$  and  $x^I$  are the unit labor requirements to produce the non-traded goods in the two countries) and considering that relative wages at equilibrium are equal to the relative efficiency in producing the threshold traded good  $z^*$  ( $w^G/w^I = a_{z^*}^I/a_{z^*}^G$ ), the equilibrium price level of Germany relative to Italy is

$$P^G/P^I = (w^G x^G / w^I x^I)^{(1-k)} = [(a_{z^*}^I/x^I)/(a_{z^*}^G/x^G)]^{(1-k)} \quad (1)$$

The latter formulation clarifies that a uniform gain in productivity concentrated in the German traded sector ( $a_{z^*}^G/x^G$  reduces and it does more than  $a_{z^*}^I/x^I$ ) implies that the German price level ( $P^G$ ) rises relative to that of Italy ( $P^I$ ). Therefore, the gain in German competitiveness through the unit cost reduction should lead at the same time to a rise in the German equilibrium price level relative to Italy. The reason is the Balassa-Samuelson effect: the increased productivity in the German traded sector causes a rise in German wages (the upward shift of the specialization schedule in figure 3) and hence a rise in unit costs and prices of German non-traded goods whose productivity has not changed. As relative price levels are determined by non-traded goods prices, in an equilibrium the relative price level of Germany that experienced the biased technological growth must increase relative to the Italian one.<sup>6</sup>

### ***An unchanged model***

Things did not go in the Eurozone as theory had predicted. Table 2 summarizes the main ingredients that contributed to the emergence of the current account imbalances in the area. I identify in the table manufacturing production as the traded-goods sector and non-manufacturing industries as the non-traded goods sector. Moreover, I divide the reading of the relevant variables in the table into two phases: the 1999-2007 period preceding the world financial crisis and the 2009-2017 period involving the Eurozone crisis caused by the sudden stop of capital flows to the deficit countries and the consequent adjustment put in place by these economies. The intermediate 2007-2009 two-year period is characterized by transitory phenomena partly blurring the interpretation of substantially

<sup>5</sup> Both assumptions can be considered quite close to the conditions characterizing the European monetary union.

<sup>6</sup> Note that a biased productivity growth in the German sector of non-traded goods would produce the opposite effect, that is, a decrease of the German relative price level. In this case, the higher productivity lowers, at initial wage, the cost and price on non-traded goods. Assuming unit elastic demand, quantity demanded of non-traded goods rises in the same proportion as the price decline (and hence as the productivity growth). There is no change in labor demand and relative wage, thus the traded sector (specialization) is unaffected. However, the reduction of prices of German non-traded goods causes a fall of the German general price level relative to Italy.

unchanged trends. Yet, I do not overlook this phase in the last column of the table where the whole Eurozone period (1999-2017) is considered.

In 1999-2007 the German current account surplus began building up, particularly towards the so-called PIGS members of the Eurozone (Portugal, Italy, Greece and Spain). In this period, we observe the kind of biased technological improvement pointed out in the Ricardian model (efficiency increase in the German traded-goods sector) and, at the same time, the lack of the re-equilibrating mechanism it predicted (German wage increase). In particular, we observe

- A biased productivity growth concentrated in the German manufacturing sector; the unbalanced growth was stronger than in the PIGS countries (productivity grew in manufacturing more than in the other sectors by 3.2% per year in Germany and by 2.1% in the PIGS countries).
- The cutting of wages in German manufacturing compared to what would have been permitted by the productivity acceleration of the sector (in Germany the manufacturing real product wage declined with respect to productivity by 1.7% per year).
- As a result, the internal rebalancing mechanism, which should have been activated with the transfer of wage increases from manufacturing to the rest of the economy, was neutralized.
- Consequently, contrary to what should have occurred, the relative prices of goods in the non-manufacturing sectors compared to manufacturing prices rose in Germany (0.9% per year) less than in the other economies (1.4% in the PIGS countries).
- Consequently, contrary to what should have occurred, inflation was substantially lower in Germany than in the other economies (by 2 percentage points according the GDP deflator, by 1.5 percentage points according to the private consumption deflator).
- As a result, the improvement of German competitiveness brought about by these trends went along with the uncorrected internal imbalances in that country and the emergence of ample Eurozone current account imbalances.

The 2009-2017 period is the phase of the sudden stop of capital flows in the deficit economies and of their consequent adjustment efforts. These countries sharply compressed domestic demand (going through a second recession) and attempted to reduce national cost and price developments below those of Germany (pursuing the recommended internal devaluation). Particularly, in this period

Table 2 – Productivity and price developments in Germany and PIGS countries					
		1999- 2007	2007- 2009	2009- 2017	1999- 2017
		<i>yearly average % change</i>			<i>Whole period</i>
<b>Productivity: manufacturing</b>					
	Germany	3,9	-11,1	4,2	50,1
	PIGS	2,0	-4,8	2,8	32,4
	Portugal	3,3	-1,0	2,1	49,6
	Italy	1,3	-8,0	3,2	21,6
	Greece	2,4	-5,4	1,0	17,3
	Spain	2,4	0,4	2,5	48,9
<b>Productivity: other sectors</b>					
	Germany	0,8	-0,9	0,3	7,0
	PIGS	-0,1	0,0	0,1	-0,1
	Portugal	0,7	0,2	0,5	10,3
	Italy	-0,3	-1,5	-0,4	-8,1
	Greece	2,4	-1,8	-1,3	5,1
	Spain	-0,4	2,5	0,7	8,2
<b>Productivity differentials: other sectors/manufacturing</b>					
	Germany	3,2	-10,1	3,9	43,2
	PIGS	2,1	-4,8	2,8	32,5
	Portugal	2,6	-1,2	1,6	39,3
	Italy	1,6	-6,5	3,7	29,7
	Greece	0,0	-3,6	2,3	12,3
	Spain	2,8	-2,1	1,8	40,7
<b>Real product wage, manufacturing</b>					
	Germany	-1,7	8,7	-2,3	-14,7
	PIGS	-0,2	0,1	-1,6	-6,0
	Portugal	-0,7	0,9	-1,1	-12,1
	Italy	0,2	5,6	-1,3	2,3
	Greece	0,0	2,6	-5,5	-33,4
	Spain	-0,9	1,4	-1,8	-16,8
<b>Sector inflation differentials: other sectors-manufacturing</b>					
	Germany	0,9	-1,2	0,8	11,4
	PIGS	1,4	0,3	-0,1	11,7
	Portugal	2,5	-0,1	0,0	22,2
	Italy	1,5	-0,2	0,5	17,3
	Greece	0,4	2,5	-3,7	-19,7
<b>Inflation: GDP deflator</b>					
	Spain	1,1	0,7	-0,5	6,1

	Germany	0,9	1,3	1,5	24,0
	PIGS	3,0	1,9	0,7	38,4
	Portugal	3,3	1,4	1,0	45,2
	Italy	2,5	2,2	1,0	38,0
	Greece	2,4	3,5	-0,4	25,7
	Spain	3,8	1,2	0,3	41,9
Inflation: Household consumption deflator					
	Germany	1,4	0,6	1,3	24,9
	PIGS	2,9	1,4	1,1	41,5
	Portugal	3,5	0,4	1,2	45,5
	Italy	2,6	1,4	1,3	39,9
	Greece	2,4	2,6	0,0	27,3
	Spain	3,4	1,3	1,2	47,4
Source: computations based on Eurostat data					

- The PIGS countries emulated Germany by containing the wages in the manufacturing sector relative to productivity (the real product wage reduced by 1.6% per year in that industry).
- This was an inadequate attempt at emulation however, since Germany kept relying on cutting wage dynamics in the manufacturing sector (-2.3% per year compared to productivity), pursuing the process of internal devaluation (while the Eurozone re-balancing required just the opposite).
- At the same time the unbalanced productivity growth (concentrated in manufacturing) continued to characterize the German economy to an extent that was larger than in the PIGS countries (the sectoral productivity growth differential was 3.9% per year in Germany, 2.8% in the PIGS economies).
- The effort made by the deficit countries is visible in the compression of their inflation dynamics below the German one (by 0.8 percentage points per year for the GDP deflator, by 0.1 for household consumption deflator); such a compression was particularly intense in some countries such as Greece and (for the GDP deflator) Spain.

		1999-2007	2007-2009	2009-2017	1999-2017
		<i>yearly average % change</i>			<i>Whole period</i>
A: Inflation differential with respect to Germany (GDP deflator)					
	PIGS	2,1	0,6	-0,8	14,4
	Portugal	2,5	0,1	-0,5	21,2

	Italy	1,6	0,9	-0,5	14,0
	Greece	1,5	2,2	-1,9	1,7
	Spain	3,0	-0,1	-1,2	17,9
B: Inflation differential with respect to Germany (household consumption deflator)					
	PIGS	1,5	0,8	-0,1	16,6
	Portugal	2,1	-0,2	-0,1	20,6
	Italy	1,3	0,7	0,0	15,0
	Greece	1,1	2,0	-1,3	2,4
	Spain	2,1	0,7	-0,1	22,5
C: Required inflation differential with respect to Germany based on sector productivity growth <sup>1</sup>					
	PIGS	-0,8	3,7	-0,8	-7,4
	Portugal	-0,4	6,3	-1,7	-2,7
	Italy	-1,1	2,5	-0,2	-9,4
	Greece	-2,2	4,6	-1,1	-21,6
	Spain	-0,3	5,6	-1,5	-1,7
D=A-C: real exchange rate change with respect to Germany (GDP deflator; + = appreciation)					
	PIGS	2,9	-3,1	0,0	21,9
	Portugal	2,8	-6,2	1,2	23,9
	Italy	2,7	-1,6	-0,3	23,4
	Greece	3,8	-2,4	-0,8	23,3
	Spain	3,2	-5,7	0,3	19,6
E=B-C: real exchange rate change with respect to Germany (household consumption deflator.; + = appreciation)					
	PIGS	2,3	-3,0	0,7	24,0
	Portugal	2,5	-6,5	1,6	23,3
	Italy	2,4	-1,8	0,1	24,4
	Greece	3,3	-2,6	-0,2	24,0
	Spain	2,3	-4,9	1,4	24,2
<sup>1</sup> Estimates obtained by applying (1) and assuming 0.7 as weight of traded goods in total expenditure. Source: computations based on Eurostat data					

Therefore, the adjustment efforts were insufficient also because Germany kept moving in the opposite direction of the needs of Eurozone rebalancing. This is clarified in Table 3. The negative inflation differential that the PIGS countries experienced with respect to Germany in the 2009-2017

period fell short of what was required by the relative productivity developments (or were just in line if inflation is measured by the GDP deflator).<sup>7</sup> As a consequence, the 2009-2017 adjustment phase was apparently characterized either by no adjustment (if GDP deflators are considered, panel D of table 3) or by a further departure from the equilibrium (if private consumption deflators are considered, panel E).<sup>8</sup> These are indications that the intra-area adjustment was not fully implemented. The last column of panel D and E in Table 3 shows the real undervaluation of Germany with respect to the PIGS countries built-up in 2017 since the inception of the monetary union. This assessment includes the 2007-2009 intermediate period characterized by temporary deviations from the underlying trends. If we consider the 1999 conversion rates of national currencies to euros as equilibrium exchange rates, these real exchange rate changes will be a measure of the real misalignment with respect to the 2017 equilibrium level; they have a dimension comparable to the real misalignments implied by the IMF and the CEPII estimates shown in table 1.

### ***Shocks to the German labor market wedge***

Berka, Derevereux and Engel (2018) show that the Balassa-Samuelson effect is detectable in the Eurozone only if the relationship is amended to take account of the separate institutional forces that affect labor costs and are unrelated to productivity. These forces are equivalent to shocks to the labor wedge that misalign unit wages from productivity developments. Formal and informal accords between trade unions and employer associations inducing wage moderation in Germany can be interpreted as such a shock. Several analysts have pointed to the profound change in industrial relations that took place in Germany in the last couple of decades.

Bofinger (2015) gives an account of these practices, which diffused particularly at the beginning of the monetary union. Their promoters explicitly asserted that productivity increases, as seen generated mainly in the traded sector, were not supposed to be used to raise real wages but to reach agreements aimed at sustaining employment. As this author annotates, this was an explicit attempt to use wage moderation to obtain an internal devaluation.

Dustman et al. (2014) argue that these practices indeed have their origins in behaviors predating the European monetary union (and the Hartz reforms of the German labor market). They are related to the efforts of Germany, beginning in the early nineties, to cope with the costs of reunification and to limit the outsourcing of production phases to neighboring Eastern European countries, which became very attractive after the collapse of communism. The flexibility of the German system of industrial relations permitted a decentralization of wage bargaining to the firm level, favoring wage moderation relative to productivity developments. Also, Bastasin (2013) underlines that major structural changes precede the inception of the monetary union and moreover, that they were mostly the result of the initiatives of private players, including large sized firms and banks, rather than public actors.

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<sup>7</sup> The inflation differential required by sectoral productivity developments is obtained applying (1). Along with Berka, Derevereux and Engel (2018), the weight of the non-traded sector is assumed to be 0.7.

<sup>8</sup> Stahler and Subramanian (2015) make similar conclusions estimating the dynamic Balassa-Samuelson relationship.

Baccaro (2018) argues that this transformation represented an important change for this country, since the ability to redistribute productivity increases across sectors was formerly a key feature of the German system of industrial relations, constituting a main concern for the strongest trade unions that defined the general tone of wage negotiations. This change, according to the author, contributed to the entrenchment of the cost-based export-led German model.

Taking stock of this evidence, it has to be added that even if German wage moderation dates back to the distant past, it was successful in transforming Germany from a sick man into an economic superstar only in the first half of the past decade. It was only then that the two further ingredients of Germany's success, besides wage moderation, were added: the unbalanced productivity acceleration in manufacturing and the cancellation of exchange rate movements with the countries that became part of the Eurozone. The latter ingredient was clearly fundamental because it eliminated the alternative mechanism of adjustment (nominal exchange rate appreciation) to the unbalanced productivity shock, lacking the mechanism of domestic wage increase. Furthermore, the fact that the exchange rate of the common currency was weaker than the exchange rate that would have been appropriate to Germany helped to shield its exports from competition coming from outside the euro area. Therefore, it was the combination of three elements - biased productivity growth in manufacturing, wage restraint and absence of the exchange rate - that transformed an effort of competitive adjustment after the shocks of the early nineties into a persistent disequilibrium process that contributed to the generation of large imbalances within the euro area.

### ***Conclusions***

The current debate on governance reforms that must tackle the failures of the Eurozone architecture is exclusively focused on the issue of the risks related to sovereign debts and national bank systems. These are clearly critical points that became central in the evolution of the Eurozone crisis. Yet, the root causes of the crisis were elsewhere: in the building up of intra-area imbalances, a process in which the unrelenting increase of the German surplus constituted the main driving force.

While the deficit countries have struggled to correct their imbalances through compression of internal absorption and wage squeezes, there has not been any symmetric movement in the German economy. This asymmetry passed largely undetected in the EU because the issue of German (internal and external) imbalances was basically dealt with by the macroeconomic imbalance procedure (MIP), which is a weak and completely ineffective instrument.

As a consequence, competitiveness gaps within the euro area did not reduce adequately during the adjustment period that followed the start of the euro crisis. The compression of inflation and wages of the PIGS countries in the last eight years was insufficient to recover the competitive loss experienced since the inception of the single currency because Germany continued to pursue an internal devaluation. Intra-Eurozone misalignments of real exchange rates relative to equilibrium levels remained significant since the fundamentals in Germany (wage moderation and unbalanced productivity growth in the traded sector) kept moving in a direction opposite to the one required

for rebalancing. This could happen also because the monetary union lacks the ultimate mechanism (increase of the domestic money base induced by swelling net foreign assets) that leads, even if with long lags, to pressuring domestic inflation in stand-alone countries (Micossi, D'Onofrio and Peirce 2018).

Remaining largely unsolved, external imbalances are clearly a factor of intrinsic fragility for a monetary union, as history has shown.<sup>9</sup> Moreover, the fact that the excess of German savings, no longer absorbed by the member countries, has been increasingly flowing to other, more rapidly growing, economies, giving rise to a huge external euro-area surplus, overexposes the monetary union to the US wave of protectionist threats.

With no significant change on the horizon, continuing to emulate the German model remains the only game in town for euro countries. This implies for all the players to compress the wage dynamics below productivity in the traded sector in order to try to gain decimals of growth through the external channel. Since Germany is doing the same, the road to adjustment appears long. It would not be surprising that, in analogy to prolonged efforts of fiscal adjustment, phenomena of “competitiveness fatigue” and rejection may emerge along the way. This raises a closely related concern. The bulk of expenditures by European citizens is not on traded goods. Most is devoted to services, distribution and public utilities, which are of low efficiency and not substitutable with imports. Thus, the possibility to improve the purchasing power of consumers depends to a great extent on the productivity of these industries. Neglecting the increase in efficiency of the non-traded productions is a path that does not coincide with the growth of the welfare of European citizens. Also, in this distortion one can find motives for the political dissatisfaction that has spread across Europe in the last few years.

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<sup>9</sup> Situations similar to that experienced in the Eurozone have already occurred under other fixed exchange rate regimes and have led to the fragmentation of monetary agreements. The obvious reference is the breaking-up of the Gold Standard in the 1930s. However, there was a similar situation also at the beginning of the 1970s with the crisis of Bretton Woods. In that case, among the difficulties in adjusting the balance of payments that led to the end of the system, there was also the resistance of the surplus country (again Germany) to revalue its currency in real terms through higher inflation in the face of sectoral productivity imbalances compared to the deficit country at the time (the United States), quite similar to the intra-euro imbalances; see Obstfeld (1993).

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