EXECUTIVE BOARD MEETING

SM/17/197
Correction 1

July 20, 2017

To: Members of the Executive Board

From: The Secretary

Subject: **Euro Area Policies—Selected Issues**

Board Action:	The attached corrections to SM/17/197 (7/7/17) have been provided by the staff:
Factual Errors Not Affecting the Presentation of Staff's Analysis or Views	**Pages 27, 32 (para. 10), 38, 71, 76**
Typographical Errors	**Pages 32 (para. 11) and 88**
Questions:	Mr. Aiyar, EUR (ext. 35973) Mr. Bhatia, EUR (ext. 37626) Ms. Barkbu, EUR (38138)

EXTERNAL ADJUSTMENT IN EUROPE: COMPETITIVENESS, THE REAL EXCHANGE RATE, AND THE TRADE BALANCE[1]

Large and persistent competitiveness gaps within the euro area (EA), as captured by labor cost and productivity differentials, are often cited as contributing to the large external imbalances of some EA countries. Using a newly constructed dataset, we unpack developments in the real effective exchange rate (REER) on a unit labor cost (ULC) basis, which incorporates wages and labor productivity. We examine the contributions of the nominal effective exchange rate (NEER), own ULCs, trading partner ULCs (within and outside the EA), and underlying ULC components. There were large differences in own ULC inflation across EA countries prior to the crisis, exacerbating cost gaps. Despite some marked adjustments post crisis, gaps remain. Since the euro adoption, changes in trading partners outside the EA—but not within—have dominated trading partner ULC changes. We find evidence that countries' ULC-based REER appreciations are correlated with lower trade balances, with the relationship stronger for EA countries. Unpacking the REER, different components exhibit different associations with the trade balance. Going forward, further declines in own ULC could enhance competitiveness, supporting external adjustment, but this should occur mainly through rises in total factor productivity (TFP), also boosting income.

A. Introduction

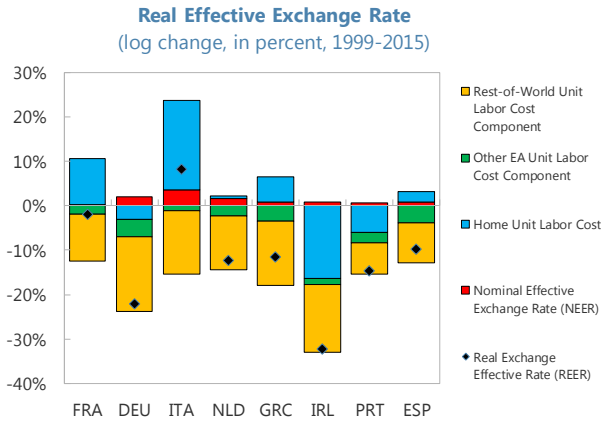
1. Competitiveness gaps between EA countries are often cited as obstacles to their external adjustment (ECB, 2012; Chen, Milesi-Ferretti, and Tressel, 2013). Several EA countries have recently had, or continue to have, large and persistent current account balances, whether deficits (such as Spain in the 2000s) or surpluses (such as Germany in the later 2000s up to today), leading to rising vulnerabilities to either sudden stops or adverse external wealth shocks. In parallel, differences in ULCs between EA countries grew post-euro adoption, with persistent deficit countries often seeing large rises while costs in persistent surplus countries tended to be relatively stable. This experience and the literature suggest that changes in competitiveness can play a role in facilitating external adjustment, helping to shrink or even reverse large and persistent current accounts and thereby reduce external vulnerabilities (~~Kharroubi, 2011~~IMF, 2015).

2. In this paper, we examine how competitiveness, measured by the relative ULC and its components, has evolved in the EA and how it is associated with the trade balance. To do so, we first construct the ULC-based REER bottom-up, allowing us to decompose each country's REER

[1] John Bluedorn and Huidan Lin (EUR). Xiaobo Shao provided outstanding research assistance. We would like to thank staff from the European Commission for their helpful comments and feedback.

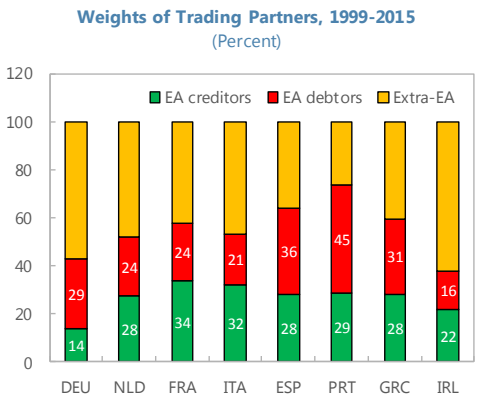
9. Decomposing the REER into relative wage, output, and employment components reveals significant cross-country variation in underlying drivers since 1999. In Germany, REER developments were heavily affected by relative wages both before and after crisis. In Italy, stagnant growth worsened relative output, driving REER appreciation prior to the crisis and partly offsetting post-crisis moderation in relative wages and employment. In Spain, the pre-crisis REER appreciation reflected growing relative wages and shrinking relative productivity but this pattern is now reversing. In Greece, the appreciation largely reflected increasing relative wages, but now the REER is falling from reductions in relative wages and employment (Figure 2).

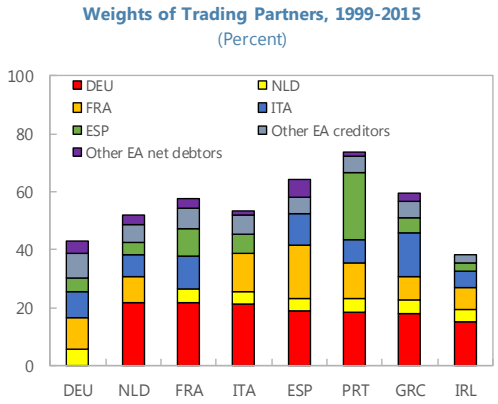
10. Other EA trading partner ULC changes account for little of the overall REER change at the EA country level since the euro adoption. Over this period, all major EA countries (except Italy) experienced a REER depreciation, with Germany and Ireland seeing the largest declines. Both own ULC and the ULC of trading partners outside the EA have tended to be the most important components of REER changes, despite the majority of EA country competition in trade typically occurring between EA countries (see below). This difference in adjustment *vis-à-vis* EA/non-EA trading partners is there even when the NEER is taken account of (text figure, ~~above~~right).



Sources: Penn World Table 9.0; AMECO; Total Economy Database; WEO; staff calculation.

11. Delving into the bilateral aspects of the REER reveals that, apart from Germany and Ireland, the majority of EA countries' competition in trade is with other EA countries. Focusing on a subset of EA countries and using averages over 1999-2015, trade weights *vis-à-vis* other EA countries range from about 40 percent (Germany) to closer to 75 percent (Portugal; text figures, below). Importantly, any components of the REER vis-à-vis other EA countries do not benefit from a flexible, bilateral nominal exchange rate. In these cases, bilateral external competitiveness is solely a function of relative prices in local currency.





Sources: IMF Information Notice System (INS) and IMF staff calculations.

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12. Insurers were more adversely affected by EIOPA's "double hit" scenario. In this scenario, there is a sudden increase of risk premia combined with the low yields. Increases in government bond yields and credit spreads of corporate bonds coincide with fall in stock prices, property prices and commodity prices. While the low-for-long scenario mainly increases the PDV of insurers' liabilities more than assets, the "double hit" scenario decreases the valuation of assets more than that of liabilities.[7] The higher yields on government and corporate bonds, the main component of assets, lead to valuation losses. Lower asset values also allow those insurers without guaranteed payments to adjust the benefit payments (dependent on the performance of the assets), which reduces liabilities to some extent. For example, those with unit-linked business encounter erosion of values held in separate accounts on both the asset and liabilities sides. The LTG measures on the liabilities side provide a cushion against the asset volatilities; for instance, the volatility adjustment on risk free rates begins to kick in during market turmoil, preventing fire sale of assets.

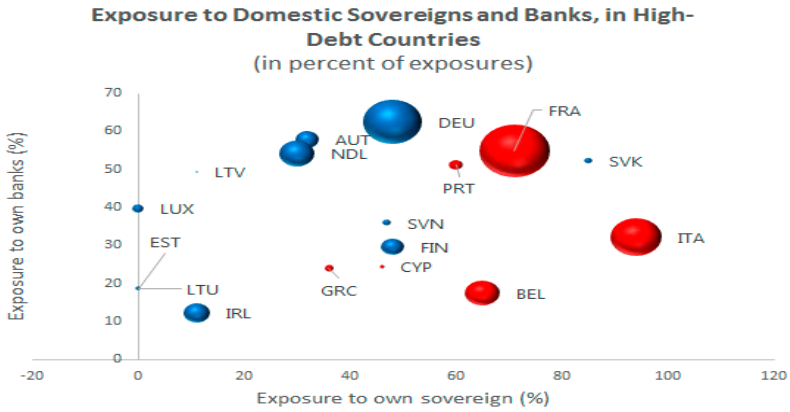
13. The maximum shortfall in the coverage of SCR by own funds implied by the EIOPA stress tests is about a ¼ percent of euro area GDP. The stress tests mainly identified Germany (and to some extent France) as having low buffers against the two specific shocks, with the highest impact for the "double hit" scenario. For countries with high guaranteed rates, duration mismatches and strong domestic interconnectedness, the government might want to step in (and refurbish policy protection schemes, for instance) to stave off spillovers to other sectors. Such contingent liabilities seem low for the overall euro area, but could be concentrated in a few countries. The maximum contingent liabilities coming out of the shortfall identified in the stress test would be about €14 billion for Germany (0.46 percent of GDP) and only about €310 million for France (0.01 percent of GDP) for the insurers to go back to an SCR ratio of 100 percent, without taking LTGs into account (Figure 7). The difference between France and Germany stems from lower baseline solvency buffers in the latter.[8] Even though the Portuguese and Belgian insurance sectors are small in the euro area, their own funds shortfall under the severe scenario are ~~0.8~~1.5 percent of GDP and ~~1.5~~0.8 percent of GDP, respectively, owing mainly to thin baseline solvency buffers.[9]

[7] Austrian, Dutch and German insurers were more impacted by the low-for-long scenario owing to large duration mismatches or long duration of liabilities, or both.

[8] Regulators, such as in Germany, recognize the insufficiency of the SCR-coverage and require insurers to present plans about how they intend to achieve a sufficient SCR-coverage at the end of the 16-year transitional period for the full adoption of Solvency II (European Commission, 2016).

[9] It should be noted that the 2016 EIOPA stress test results did not specify a pass-fail criterion. The calculations on SCR-coverage shortfall are based on the results of the two scenarios—changes in assets and liabilities—published by EIOPA. The more conservative threshold for the SCR ratio—the one without adjustments for LTGs—is used to calculate the SCR-coverage shortfall in this note.

Figure 12. Domestic Systemic Risk from Linkages



Source: EIOPA; IMF staff calculations.

Note: The bubble size is proportionate to the size of the insurance sector in the country; ~~colored~~ red bubbles represent countries with government debt higher than 90 percent of GDP, the euro area average in 2016.

D. Summary Indicator of Vulnerabilities

20. Countries can be ranked based on a summary indicator of ICPF vulnerabilities. Four sets of vulnerabilities are considered: *interest rate risk* due to duration mismatches (z-scores for duration mismatch) and prevalence of guaranteed products (1 or 0); *domestic interconnectedness* with own sovereigns and banks (z-scores for the fraction of bond-holdings exposed to own sovereigns and banks); *low solvency buffers* (z-scores for the 2016 EIOPA stress test baseline SCR ratios without LTGs); and finally, *size* of the insurance sector (z-scores based on the size of own funds). Thus, the z-scores based on the four sources of vulnerabilities can be summed up to create an overall index of systemic vulnerabilities from ICPFs (Figure 13). In addition, the EIOPA stress test results are captured by red bars in Figure 13, showing countries where insurers fell below the 100 percent SCR ratio in at least one of the two stress scenarios. Countries can also be ranked by their z-scores on each of the four sources of vulnerabilities (Figure 14).

21. Germany and France stand out as being especially vulnerable, followed by Austria (Figure 13). The biggest source of risks for these countries come from interest rate risk (Germany and Austria) and large size (Germany and France). The more disaggregated scores (Figure 14) show that Germany, Austria and Latvia are the most vulnerable to interest rate risk from both duration mismatches and prevalence of guaranteed products. Greece, Portugal and Spain had the least baseline SCR-coverage buffers (for the EIOPA stress tests), and so would have the least ability to withstand shocks. Slovakia, France, and Germany score high on domestic interconnectedness, although Italy and Portugal come close behind.

22. The results of the EIOPA stress tests can be seen to test the insurers on the combination of interest rate risk and low solvency buffers. The overall SCR-coverage shortfall of a ¼ percent of GDP for the euro area for the "double hit" scenario assumes a generalized market turmoil. Some of the countries with higher-than-average SCR-coverage shortfalls—Portugal

3. Reforms would require a mix of actions at national and EU level, and in some cases would involve coordination challenges. Taxation is an area of shared competence—national authorities may legislate where the EU has not exercised its own competence and, even where the rules have been harmonized at EU level, countries usually have a number of options at their disposal. Nevertheless, the current EU legal framework poses certain limitations for introducing reforms (ii) and (~~i~~iv) in full. Relying less on EU vehicle CO_2 emission standards would require stronger policies from EU member states to meet their national-level targets for the non-ETS sector. The EC's proposed regulatory approach to reduce vehicle emissions may, however, provide more certainty over emissions outcomes, more directly addresses possible obstacles to adoption of fuel-saving technologies, and avoids the high fuel taxes otherwise needed to achieve CO_2 emissions reductions from transportation.[4] At the same time, the analysis in this paper shows it could be in countries own interest to rely more on fuel taxes than vehicle CO_2 emission standards, since there are cost savings and fiscal revenue benefits.

4. Policy options were evaluated using a flexible spreadsheet tool.[5] The model starts with data on fuel use by sector and by country and projects this forward (using GDP projections and assumptions about income elasticities for energy products, rates of technological change, and future energy prices) in a 'business as usual' (BAU) scenario, with current mitigation policies frozen. An 'envisioned policy' reference case is then developed with a simplified representation of the ETS, regulations (represented in the model by 'shadow prices') to meet energy efficiency, vehicle emission rate, and national level targets for non-ETS emissions. Policy impacts are calculated using assumptions about fuel price responsiveness and the air pollution mortality, road congestions, and other local environmental effects associated with fossil fuel use.[6, 7] The model incorporates the 19 largest emitters in the EU with the focus on 2030, the target year for meeting the Paris emissions pledge, considering that policies to 2020 are already set.

5. While the model is simplified, it approximates the results of more detailed models. The model readily accommodates a wide range of policies, countries, parameter scenarios, and computations of economic welfare impacts—gross costs and costs net of domestic environmental benefits. This helps to guide efficient policy design and motivate further analysis with more detailed models, such as those used by the EC. For given long-run impacts of policies on fossil fuel use, the environmental, fiscal, and economic welfare impacts predicted by the model should roughly

[4] Prior EC studies (EC, 2011 and EC, 2016a) have found that a combination of regulatory and pricing measures would be needed to put the transport system on a sustainable path, lowering CO_2 emissions, oil dependency and congestion. Ongoing IMF work will attempt to reconcile these findings with the model results presented here.

[5] Similar tools have been used to evaluate a wide range of carbon mitigation and energy price reforms in China (Parry and others 2016) and India (Parry and others 2017).

[6] For example, a typical assumption is that each 1 percent increase in a fuel price reduces consumption of that fuel by 0.6 percent, with two-thirds of the response due to implicit adoption of more efficient technologies and one-third reduced use of products requiring that fuel.

[7] Updated from Parry and others (2014).