LIETUVOS BANKAS
EUROSISTEMA

OCCASIONAL PAPER SERIES

No 11 / 2016

A CLOSER LOOK AT EU CURRENT ACCOUNTS

ISSN 2424-3213 (ONLINE)

OCCASIONAL PAPER SERIES
No 11 / 2016

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I am very thankful to the participants of the internal seminar at the ECB, the research seminars at the Paris School of Business and at the Bank of Lithuania and two anonymous referees for suggestions and comments. Lastly, I gratefully acknowledge the assistance of Paulina Katilovskytė in collecting the data and Sara Tropper for the editing and proofreading.

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The Series is managed by the Applied Macroeconomic Research Division of Economics Department

A Closer Look at EU Current Accounts

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This version: August 2016 †‡

Abstract

In this paper, we look at the determinants of current accounts in twenty-seven EU countries over the period 1994-2014. The twenty-seven countries of interest are divided into three sub-groups, namely: core, periphery and CEE new member states. We also assess the current accounts based on computed equilibrium values, and we provide a measure of misalignment for the medium run. As determinants we include capital flows as well as demographic, fiscal and relative development factors. The initial Net Foreign Asset position and oil balance seem to matter more in the core countries than in the periphery and CEE new member states. In contrast, the periphery and CEE new member states seem to be more strongly affected by capital flows. Fiscal balance negatively affects only the periphery, while an increase in government spending is positive for the current account for CEE new member states. In the past twenty years these misalignments have shown a cyclical behaviour in most EU countries, and the magnitude of the cycles themselves are highly heterogeneous across groups. Lastly, we compute an adjusted current account equilibrium, which tries to correct the equilibrium value by the role of expectations (proxied by IMF projections). This factor has more of an impact in the UK than in the euro-area countries.

Keywords: Current account misalignments; foreign capital flows; European Union.
JEL Codes: F32, F31, C33.

1 Introduction

The last crisis has shown how excessive external imbalances and losses in competitiveness in international markets have increased the vulnerability of some EU countries and of the euro area as a whole. The Current Account (CA) imbalance may indeed contribute significantly to the emergence of bubbles and the cross-country transmission of financial crises (Ca' Zorzi et al., 2012), and it may also be a sign of serious macroeconomic and financial stress (Obstfeld, 2012). Accurate CA assessment requires a proper measure of equilibrium and misalignment based on country-specific characteristics rather than *ad-hoc* thresholds (Comunale, 2015b). Knowing whether or not a country's current account is close to its equilibrium value also helps us to determine future adjustment needs and possible trajectories of economic fundamentals. The imbalances can be also transitory (and caused by the cycle or structural reforms) or rather persistent due to bad fundamentals. We believe that a more refined analysis of the misalignments may be of use for improving the Macroeconomic Imbalance Procedure (MIP), which currently assesses it on the basis of threshold levels. Hence, we examine CA norms (which are the equilibrium CAs following the IMF definition) in each EU member state, based on their own fundamentals, in order to better consider them in a medium-run perspective and to understand the importance of each determinants.

We calculate the CA misalignments for the medium run from the Macroeconomic Balance approach used by the IMF in the Consultative Group on Exchange Rate Issue (IMF CGER, hereafter). These are calculated as the differences between the underlying Current Account based on IMF projections and the Current Account "norm" (based on an estimation of the Current Account projected determinants). The determinants of the current account are taken from Lee et al. (2008), Ca'Zorzi et al. (2012), and Medina et al. (2010). In the last two contributions, the impact of Foreign Direct Investments (FDIs) is also considered. In our study we add three different foreign capital flows: FDIs, portfolio and "other" investments (which are normally bank loans as defined by the IMF)[1]. We believe that understanding how foreign capital flows affects the CA and its equilibrium value is of particular interest within the EU, especially if we look at evolution over time, before and after the crisis. Ultimately, we compute an equilibrium value that takes into account expectations of the future current account balances for some key countries: Spain, Germany, Lithuania and the UK.

For core countries, the initial Net Foreign Asset (NFA) position and oil balance seem to matter more than in the general case. Periphery and Central and Eastern European (CEE) new member states, as expected, are more strongly affected by capital flows. An increase of capital flows in these countries seemed to be directed to non-tradeable and less-productive sectors, decreasing exports, while increasing domestic demand boosts imports. Financial cyclical components seem to play a role. Population variables play different roles among the sub-samples. Population growth seems to matter more for core countries, and affects the balance negatively. The dependency ratios play a positive role only for the periphery; having young children or a large proportion of elderly people can decrease imports, as does an increase in savings. Fiscal balance negatively affects the periphery only, while an increase in government spending is

[1] Comunale (2015b) also offers an analysis based on the Macroeconomic Balance approach for EU new member states only. The author studies the CA misalignments together with the REER misalignments. In that article, the misalignments of the REER are calculated by dividing the difference between the CA norm and the underlying CA by the estimated CA elasticity from Comunale and Hessel (2014).

positive for the current account in the case of new member states. The latter is probably more directed to exporting sectors of the economy. Relative income with respect to the US level does not affect new member states. GDP per capita growth has a very asymmetric role across our sample: it is positive for the core and can become negative in the full specification for the periphery.

The misalignments show cyclical behaviour during the last twenty years in most EU member states. Moreover, the magnitude of the cycles themselves are highly heterogeneous across groups. For instance the misalignments experience a peak in 2006-2008 and tend to slightly decrease in the years after the crisis among CEE new member states and the periphery. In the case of core members, the outcomes are more diversified and the magnitide of the cyclicality is less pronounced, with the exception of France. The analysis of CA gaps corroborates the importance of analysing the impact of cycles, especially financial cycles relative to inflows of capital from abroad (Comunale and Hessel, 2014). Furthermore, the CA at time t needs to be assessed by using proper equilibrium values. In our opinion is worthwhile to look at both the regular CA norm (or equilibrium) and the Adjusted CA Equilibrium when evaluating the balance. The Adjusted CA Equilibrium tries to correct the CA norm by the role of expectations, in this case proxied by IMF WEO projections. The latter is more important for the UK than for the euro-area countries considered here.

In the rest of this paper, section 2 introduces the main strands of the literature to which our paper contributes; sections 3 and 4 report how the misalignments are computed and provides the data; section 5 describes the results for determinants and misalignments of current accounts and section 6 concludes.

2 Literature review

Our paper contributes to several streams of literature. First, a large body of research, both theoretical and empirical, examines factors that can influence the dynamics of the CA. These include: demographics, government fiscal policy, the catching-up potential, as well as various institutional characteristics that can affect the ability of the government and private sector to borrow abroad (see IMF CGER, 2006; Rahman, 2008; Calderon et al., 2002; Chinn and Prasad, 2003 and Bussiére et al., 2010). Most of these variables are used in relative terms and are constructed as deviations from the weighted averages of the main foreign trading partners. Concerning these long-run determinants of CA, here we look at the more recent models by Lee et al. (2008) and Medina et al. (2010). In these articles the determining factors are fiscal balance, old-age and young-age dependency ratios and population growth, initial NFA, oil balance, a relative income measure, relative output growth, and net FDI flows/GDP (in Medina et al., 2010). A more comprehensive analysis of CA determinants can be found in Ca'Zorzi et al. (2012).

While the literature on exchange rate misalignments is quite extensive, only a handful of studies investigate a combination of determinants and possible misalignments for the current accounts (e.g., Darvis 2015). This paper applies panel econometric models to analyse the determinants of medium-term current account balances and then examines the gap between the actual current account and its fitted value in the model as a measure of misalignment. Darvas concludes that current account deficits in several EU countries were highly excessive before the crisis and were forcefully corrected. Most previous EU deficit countries now show an excess surplus. In Darvas's (2015) study, the actual values

of the explanatory variables to calculate fitted values for the current account are used, but the actual explanatory variables do not always correspond to medium-term sustainable values. Taking a different path, we multiply each determinant by its projected value in the medium-term (i.e. 6 years) and compare the built CA "norm" with the CA projected 6 years ahead, as in the IMF CGER procedure. Moreover, Darvas (2015) includes lagged NFA positions as determinants in a static panel. The NFA is defined as sum of CA balances until time t and valuation effects. With the NFA used as an explanatory variable for the CA itself, even if lagged, the setup approaches a dynamic panel. This aspect would affect the right method to estimate the coefficients. Last, neither the key issue of cross-sectional dependence nor the impact of flows is addressed in Darvas (2015).

The setup we use in this paper has been applied by Comunale (2015b) to Central and Eastern European new member states. The author finds that foreign capital flows, oil balance, and relative output growth help to explain the current account balance in new member states. Global factors such as shocks in oil prices or supply might have contributed to a worsening of the current account balances. Having a pegged exchange rate regime (or being part of the euro zone) affects the current account positively. The balance resembles equilibria in 2012 in most of the studied countries and the rebalancing is completed for some countries that were less misaligned in the past, such as Poland and the Czech Republic, but also Lithuania. When FDI flows are introduced as a determinant for these countries, the misalignments are larger in the boom periods (positive misalignments) whereas the negative misalignments are smaller in magnitude. Concerning the relationship between current account and net foreign capital flow, Oeking and Zwick (2015) argue that even if normally it is the current account which Granger-causes the capital account, short-term flows seem to finance the current account during economic downturns, while inducing changes during upturns.

3 Calculation of the misalignments

In this paper we extend this approach from CEE new member states only (Comunale, 2015b) to the entire EU. The current account misalignments for the twenty-seven EU members follow the Macroeconomic Balance (MB) approach of the IMF CGER (Lee et al., 2008). We decided to apply the CGER methodology instead of the new External Balance Assessment (EBA) because the latter, which takes into account a much broader set of factors (including policies, cyclical conditions, and global capital market conditions) that may influence the current account, does not provide any theoretical foundation for their inclusion in the setups all together, which may raise issues for the econometric analysis of CA determinants. In addition, in computing the misalignments, the EBA methodology include some desirable (albeit *ad-hoc* for each country) values for the policy variables. The variables that are under policy control (fully or partially) are the fiscal balance, capital controls, social spending, reserve accumulation, and financial policies (proxied by private credit). The resulting misalignments would be driven by subjective valuations of these variables, which may in some cases and countries seriously complicate the analysis. Therefore, we present here the results for the Macroeconomic Balance approach from the IMF CGER, which provides a measure of current account equilibrium (norm) based on the coefficients of the CA determinants. The CA misalignments are then calculated as the differences between the underlying

Current Account based on IMF projections at time t+H, where H is 6 years ahead ($CAunderlying_{i,t+H}$) and Current Account "norm" based on an estimation of the Current Account determinants ($CAnorm_{i,t}$). The former can be thought of as the "actual" CA in the medium run and the latter as a CA equilibrium value in the medium run.

The MB method starts with an estimation of determinants, as in Lee et al. (2008), Medina et al. (2010) and Rahman (2008). These variables are also the main determinants in the subset taken into account in Ca' Zorzi et al. (2012), which provide an empirical, although not entirely atheoretical, characterization of current account determinants[2]. The factors considered here are relative fiscal balance, relative old-age and young-age dependency ratio and relative population growth, initial NFA, the oil balance, a relative income measure, the relative output growth, a crisis dummy (equal one after year 2008[3]) and the net FDI flows/GDP (considered in Medina et al., 2010); portfolio net flows/GDP and other net flows/GDP. Hence, we consider all net foreign capital flows as determinants for the current account. As in Oeking and Zwick (2015), the financial account Granger-causes the current account during economic upturns (data on OECD countries). More specifically, short-term flows seem to finance the current account during economic downturns, while inducing its changes during upturns. This is particularly true for net other investment flows and, in some cases, for portfolio flows. The set of the determinants should not include the Real Effective Exchange Rate (REER, hereafter) in a non-VAR setup. This is because among the fundamentals of the REER itself we normally find[4] the NFA position, which is defined as the sum of the cumulative CA and the valuation effect (Lane and Shambaugh, 2010). This can cause a problem of reverse causality if REER in included among the fundamentals for the CA[5]. The IMF CGER indeed does not take the REER as a medium-run determinant for the CA. Ultimately, in Comunale and Hessel (2014), the authors show that the REER can be important for the Trade Balance (and CA) in the euro area but only in the short-run. Given that our analysis is based on a more medium-run perspective, we decide to not include this variable in the main analysis, but only in a robustness check.

The CA "norm" is hence built as the estimated coefficients for each determinant above-listed (X) multiplied by the projected variables taken from IMF WEO or UNDESA[6] as is the case as well in the IMF CGER and Lee et al. (2008). For the year 2014, for instance, the latest projections are for 2020 (as t+H), so we use for each year considered the projection for the 6th year ahead (H), as in equation (2). The *CAunderlying* is again the projected CA/GDP value from IMF WEO at time t+H. IF t+H is before 2014, the projected data are replaced by actual data.

[2] The authors theoretically base their work on different models (see for instance the intertemporal model by Bussiére et al., 2006 among others) in order to investigate them and their common features; then they choose the best model, using a transparent selection procedure, after which they apply the Bayesian Averaging of Classical Estimates (BACE) developed by Sala-i-Martin et al. (2004) to assess the probability of each model, and they also employ model combination techniques.

[3] We do have a dummy for the years after 2008, in order to control for a possible break after the beginning of the global crisis.

[4] See Lee et al. (2008) and Ricci et al. (2013) for the IMF CGER method to calculate REER misalignments based on its determinants; Comunale (2015a, 2016a) for an analysis on REER misalignments for the EU; and theoretically Lane and Milesi-Ferretti (2004).

[5] The REER has been included only in a extended version of the analysis by Ca' Zorzi et al. (2012).

[6] Also the projected variables, if taken relative to partners in the estimation, are in relative terms.

$$(CA/GDP)_{i,t} = \alpha_i + \beta_{i,t} X_{i,t} + \varepsilon_{i,t} \tag{1}$$

$$CAnorm_{i,t} = \widehat{\beta}_t \cdot X_{i,t+H} \tag{2}$$

$$CA\_mis_{i,t} = CAunderlying_{i,t+H} - CAnorm_{i,t} \tag{3}$$

4 Data description

For the current account determinants, the data used to estimate the model cover the period 1994-2014 at annual frequency for twenty-seven EU member states. A detailed description of the data is available in the annex. All the variables that are in relative terms are based on weighted averages with respect to forty-one partners. The time-varying weights are from DG ECFIN Price and Cost Competitiveness database.

The dependent variable is the current account over GDP and is taken from IMF WEO. Among the regressors, the initial Net Foreign Asset position is taken from the External Wealth of Nations dataset, in the updated and extended version by Lane and Milesi-Ferretti (2007). The fiscal balance, old-age and young-age dependency ratio, population growth, real GDP per capita growth and GDP per capita PPP (taken as the ratio w.r.t. the US values) are used in relative terms. These variables' data are taken from IMF WEO, WB WDI and UNCTAD. The oil balance and FDI/GDP, portfolio investments and other investments are taken from IMF WEO. The old-age dependency ratio is defined as the ratio of older dependents (people older than 64) to the working-age population–those ages 15-64. Data are shown as the proportion of dependents per 100 working-age population. The young-age dependency ratio, by contrast, is the ratio of younger dependents (people younger than 15) to the working-age population–those ages 15-64. For the data 1994-2014, the source of the dependency ratios is WB WDI, as it is for population growth. The projected data for the demographics and the population growth are from UNDESA and are averaged 2015-2020[7]. The last variable is taken at constant fertility rate (as in Lee et al., 2008) with the average exponential rate of growth of the population over a given period[8]. We have a dummy for the years after 2008, in order to control for a possible break after the beginning of the global crisis.

The projected variables for the CA norm are taken from IMF WEO or UNDESA[9] (for year 2012 the latest projections are for 2018). We were unable to find projections for the portfolio flows (net) over GDP and other flows (net) over GDP. Thus, we used HP filtered values corresponding to the year taken into account (for instance, the HP filtered value for 2012 in case of CA equilibrium for year 2012)[10].

[7] We use non-averaged data only for years 2015 and 2020.

[8] This is calculated as ln(Pt/P0)/t where t is the length of the period. It is expressed as a percentage.

[9] UNDESA, World Population Prospects: The 2015 Revision (July 2015).

[10] In this case, for Slovenia, the data concerning 1995 equal those for 1994, due to a gap in the data series. For the years 2013 and 2014, we use the last data series available, that is, for year 2012. Only for the year 2014 do we use the HP filtered series in case of FDIs.

5 Results for determinants and misalignments of current account

5.1 Determinants of the current account

5.1.1 Empirical framework and diagnostics

In this paper we extend our approach from CEE new member states (Comunale, 2015b) to the EU as a whole[11], applying a static panel setup for the period 1994-2014, annual data, for twenty-seven countries. We consider the relative fiscal balance, relative old-age and young-age dependency ratio and relative population growth, initial NFA, oil balance, a relative income measure, the relative output growth, a crisis dummy (equal one after year 2008) and the net FDI flows/GDP (considered in Medina et al., 2010); portfolio net flows/GDP and other net flows/GDP (as in the analysis for CEE new member states by Comunale, 2015b).

Hence, we tested for cross-sectional dependence (CSD) and stationarity of the series. In the first case, we apply the cross-sectional independence test by Pesaran (2004)[12], finding a strong rejection of independence. This indicates a serial correlation in the idiosyncratic errors which we need to correct. Given CSD, for the second diagnostics we use the second generation t-test by Pesaran (2003, 2007) for unit roots in heterogeneous panels with cross-section dependence (CIPS), finding that our series are stationary[13] with the exception of the old-age dependency ratio[14]. As reported by Medina et al. (2010), the demographic variables may be non-stationary. They argue that these measures seem to be trending during the sample period, but the variables are bounded by construction and should be stationary over a longer period (we only have data for 1994 to 2014).

Following the outcome of the diagnostic tests, we decide to estimate our static panel by using pooled OLS, adding the Net Foreign Asset position as fixed effects[15] (as in Medina et al., 2010) but correcting our standard errors with Driscoll-Kraay correction (Hoechle, 2007) for cross-sectional dependence.

5.1.2 Results of the determinants for the EU

The results for the whole EU, with all the different types of foreign net flows, each of them separated, are reported in Table (1). We find a negative effect for all the types of flows, albeit one that is extremely small in magnitude.

We also run the same exercise for three sub-groups of countries, namely the core[16], the periphery[17] and CEE new member states[18]. The results are quite asymmetric among the groups, as reported in Table(2a-2c). It is worth noting that splitting the whole sample into three parts may have some drawbacks, given the already small sample in the general EU case. This method, however, has the advantage of retaining a great deal of heterogeneity across EU members.

[11] Luxembourg excepted, because there are no data available for foreign capital flows.

[12] Pesaran's statistic follows a standard normal distribution and is able to handle both balanced and unbalanced panels. It tests the hypothesis of cross-sectional independence in panel data models.

[13] The null hypothesis assumes that all series are non-stationary.

[14] Concerning the old-age dependency ratio, relative income and oil balance we cannot reject the null hypothesis.

[15] The coefficients are therefore assumed homogeneous.

[16] Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, the Netherlands, Sweden, UK.

[17] Cyprus, Greece, Ireland, Italy, Malta, Portugal, Spain.

[18] Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia.

[Insert Table 1 around here]
[Insert Table 2a-2c around here]

In the case of core countries, initial NFA position (here taken as in 1993) and oil balance seem to matter more than in the general case. The sign for the initial NFA is negative for core countries and positive for the periphery. Countries with negative NFA are expected to improve their CA positions to preserve long-term solvency, so the sign should be positive (Lane and Milesi-Ferretti, 2004).

As expected, the effect of capital flows is much stronger for the periphery and CEE new member states[19] than it is for the core. An increase of capital flow in these countries seemed to be more directed to non-tradeable and less-productive sectors, decreasing exports, while increased domestic demand boosted imports. Financial cyclical components seem to make an impact.

Population variables play different roles among the sub-samples. Population growth seems to matter more for core countries, affecting the balance negatively. Dependency ratios play a positive role only for the periphery; having young children or a large proportion of elderly people can decrease imports, as can give an increase in savings. Fiscal balance negatively affects only the periphery or the EU as a whole, therefore we don't see the expected increase in savings. An increase in government spending is positive for the current account in the case of new member states. This latter is probably more directed to exporting sectors of the economy. Relative income with respect to the US level does not impact on new member states. We expected a positive sign because, as they approach the income level of the advanced economies (which means convergence), their CAs should improve. GDP per capita growth has a very asymmetric role across our sample; positive for the core can become negative in the full specification or for the periphery and CEE new member states. We expect to have a negative relative output growth coefficient which captures relative economic growth with respect to the partners, and stronger growth is often linked to a decline in CA; because the country tend to save less today and import more.

As a robustness check, we include the REER into the set of the determinants, being aware that we can have a problem of reverse causality. We use the nominal effective exchange rate *vis-á-vis* 42 countries and deflated by CPI from Eurostat and we use the index in logs. The results for the specification including all the types of capital flows is at Table 3. The REER is not significant for the full EU sample and the results for the other determinants are very robust (as in Table 1, column (1)). For the 3 sub-groups we confirm this result. The REER is significant only for the peripher countries. In this case a decrease in the REER, i.e. an improvement in price competitiveness, may have positive effects on the CA.

[Insert Table 3 around here]

5.2 Current account misalignments

In light of these results, we apply the coefficients from the CA determinants in order to calculate the current account misalignments for member states, following the method in Section 3. CA imbalances

[19] The results differ with those in Comunale (2015b) because this dataset includes all types of foreign capital flow. We add two more years of data (2013 and 2014) to the sample and the projections are taken from the more recent IMF WEO and UNDESA releases (October-November 2015). The projections to the furthest periods ahead changed considerably.

strongly depend on both our calculated "norm" and the projected values of the CA over the GDP itself. Hence, a change in medium-term projections can significantly affect our calculation of the misalignments. Nonetheless, this remains a widely used tool to assess the CA in the medium run.

As a quick robustness check, we construct the misalignments to parallel as closely as possible Darvas (2015)[20], that is, if we do not use data for 6 years ahead but the present values and we apply the coefficients from the whole EU. Our results for the CA misalignments calculated in this way for year 2012 are somehow comparable in magnitude and sign.

For our calculation of the misalignments, we add a dummy for the years after 2008. This controls for a possible break after the beginning of the global crisis. However, we do not include the dummy in the calculation of the misalignments, which should be only driven by fundamentals. We use the coefficients from the three sub-samples in order to retain heterogeneity across EU members. In the results, a CA over GDP misalignments of 1pp. means that the difference between the projected CA 6 years ahead and the medium-run equilibrium value is +0.01, that is, the "actual" value of the CA balance in the medium run is 1pp. bigger than what is supposed to be based on fundamentals. We report the results for years 2014 and 2008 for all EU member states, by using the sub-sample coefficients, stressing CA projections, norms and misalignments (Figure 1a and 1b).

[Insert Figure 1a, 1b around here]

Let's take, for instance, Germany. In 2012, Germany was misaligned by 4% because the projected CA for 2018 is 7.3% of GDP while the CA based on medium-term fundamentals should be 3.1% of GDP. Lithuania, for its part, also experienced a positive misalignment in 2012; however, this was caused by a projected CA balance of -1.7% of GDP in 2018 compared with -4.7% based on fundamentals which include capital flows. Regarding the periphery, Spain, for example, has a gap of 3%, with a projected positive CA balance of 0.7% and a norm of -2.3%. Thus we see that positive misalignments can yield different information about the state of a country. The UK is a case of negative misalignments; that is, both norm and projected values are negative. The norm is quite stable because it is an equilibrium value for the medium-run. However the projected CA is much more negative and it decreases over time. The evolution of CA misalignments over time for Germany, Lithuania, Spain and the UK is reported in Figure 2[21].

[Insert Figure 2 around here]

For Lithuania, the CA is close to the equilibrium in 2014, in line with the findings in Comunale (2015b). In general the CA balance is very close to the equilibrium values for CEE new member states, excepting Croatia. In the case of Germany and especially Spain, the re-equilibrium process is still on-going and the CA is currently misaligned by 3.7pp and 4.2pp.

The misalignments show a cyclical behaviour during the last twenty years in most EU member states, and the magnitude of the cycles themselves are very heterogeneous across groups. For instance

[20] In Darvas (2015), the fitted values from the model are compared by using coefficients either from the global sample, EU, advanced countries or emerging countries.

[21] The full results for misalignments in the period 1994-2014 for every EU member state with both full EU coefficients and sub-samples coefficients are available upon request.

the misalignments experience a peak in 2006-2008 and tend to slightly decrease in the years after the crisis in CEE new member states and the periphery (Figure 3b). In the case of core members, the outcomes are more diversified and the magnitude of the cyclicality is less pronounced, with the exception of France (Figure 3a). The analysis of CA gaps corroborates the importance of analysing the influence of cycles, especially financial cycles relative to inflows of capital from abroad (Comunale and Hessel, 2014).

[Insert Figure 3a, 3b, 3c around here]

5.3 Assessment of the actual CA balances

At this point, we will assess the CA at time t, rather than the CA in the medium run and its path. Hence we draw a comparison between our medium-run measure of equilibrium for the CA (CA norm) and the actual CA at time t[22]. We add a new equilibrium measure that takes into account the difference between the actual CA at time t and the projected value 6 years ahead ($CAunderlying$), which was used to build the above-mentioned misalignments. This can be seen as the CA equilibrium corrected for expectations. We will call this latter measure the "Adjusted CA Equilibrium" ($ACAE$). For convenience, below we report how this new variable is computed (Equation (4)).

$$ACAE_{i,t} = CAnorm_{i,t} + [(CA/GDP)_{i,t} - CAunderlying_{i,t+H}] \quad (4)$$

$$= \widehat{\beta_t} \cdot X_{i,t+H} + [(CA/GDP)_{i,t} - CAunderlying_{i,t+H}] \quad (5)$$

Figures 4 and 5 show some interesting cases in this regard: Spain (a), Lithuania (b), Germany (c) and the UK (d). We believe that these four countries are representative of our studied groups. Moreover, an analysis of the UK is called for because of the possible impact of the British pound accompanied by a change in direction of capital flows on the current account also in light of the recent Brexit referendum. In Figure 4, we show the CA norm and the actual CA at time t. In Figure 5 we have the Adjusted CA Equilibrium compared with the actual CA at time t.

[Insert Figure 4 around here]
[Insert Figure 5 around here]

The UK case is indeed interesting. The CA norm is rather stable, while both actual CA and the projected values are almost always negative, with the projected value greater in magnitude before 2012. The ACAE shows that the corrected equilibrium value, which takes into account the expectations about the CA itself, is positive–while declining from 2012. We can expect a further decrease of projected CA for the UK after the Brexit referendum's result of the 23rd of June 2016, and therefore we may see the ACAE going down in the incoming periods. Concerning Spain and Germany, as examples of countries at the periphery and the core, respectively, the norm value is quite noisy. However, we see both positive actual CA and projected values. The ACAE for Spain is very close to the actual CA while for Germany it is much smaller than the true value. The CA norm in this latter case is key: since 2005 it has been

[22] The CA/GDP data for this section are taken from IMF WEO, April 2016. The data until 2014 are not estimates but actual values.

persistently below the CAs. The ACAE depends less on the difference between the projected/expected values and the actual ones and more on the inner fundamentals of the economy. Last, Lithuania seems to be moving in the right direction; both actual CA and projected values are now rather similar and close to the medium-run norm.

6 Conclusions, policy implications and further research

In this paper, we look at the determinants of current accounts in twenty-seven EU countries over the period 1994-2014. We study different sub-groups of these twenty-seven countries, namely: core, periphery and CEE new member states. As determinants we include capital flows as well as demographic, fiscal and relative development factors.

The initial NFA position and oil balance seem to matter more in the core countries than in the general case. The periphery and CEE new member states, for their part, are much more strongly affected by capital flows. Fiscal balance negatively affects only the periphery, while an increase in government spending is positive for the current account in the case of new member states. A possible role for financial cyclical components is evident. Population variables play different roles among the sub-samples. Population growth seems to matter more for the core countries, affecting the balance negatively. Dependency ratios play a positive role only for the periphery; having young children or a large proportion of elderly people can decrease imports, as can an increase in savings.

The medium-run misalignments show cyclical behaviour during the last twenty years in most of the EU member countries, and the magnitude of the cycles themselves are extremely heterogeneous across groups. For instance the misalignments experience a peak in 2006-2008 and tend to slightly decrease in the years after the crisis in CEE new member states and the periphery. In the case of core members, the outcomes are more diversified and the magnitude of the cyclicality is less pronounced.

Also the CA at time t needs to be assessed by using proper equilibrium values. In our opinion is worthwhile to look at both the regular CA norm (or equilibrium) and the Adjusted CA Equilibrium, when evaluating the balance. This latter Adjusted CA Equilibrium tries to correct the CA norm by the role of expectations, in this case proxied by IMF WEO projections. The latter has more of an impact in the UK than in the euro-area countries studied here.

Examining the link between current-account imbalances and exchange-rate misalignments may be also of crucial importance for the EU, as it constitutes an analysis of the asymmetries in the transmissions within the EU. Along these lines, it is key in our opinion to build a proper measure of both REER (Comunale, 2016a) and current account misalignments that is based on country-specific characteristics rather than ad-hoc thresholds (Comunale, 2015b). Investigating whether a country's exchange rate or current account is close to its equilibrium value also helps us anticipate future adjustment needs and possible trajectories of economic fundamentals. Hence a more nuanced analysis of the misalignments may help to improve the Macroeconomic Imbalance Procedure (MIP), which presently assesses these variables on the basis of threshold levels. Clearly, the two measures of macroeconomic misalignments at hand, namely current-account imbalances and exchange-rate misalignments, are closely related and mutually sensitive. In light of the importance of the financial cycle measure in determining both current accounts (Comunale and Hessel, 2014) and REERs via capital flows (Comunale, 2016a) and Exchange

Rate Pass-Through (Comunale, 2015c), we recommend including this financial measure as well. The misalignments built here indeed take into account the impact of foreign inflows (as determinants of CA and REER). Moreover, the financial gap itself is a measure based on output but also on domestic demand or credit. In our next project we make these imbalances and gaps interact.

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7 Annex

Tables and Figures

Table 1: Results of determinants of the CA for the EU

VARIABLES	(1) ca_gdp	(2) ca_gdp	(3) ca_gdp	(4) ca_gdp
nfa_gdp_0	-0.0200*	-0.0138	-0.0133	-0.0116
	(0.0110)	(0.0105)	(0.0110)	(0.00987)
fdi_gdp	-0.00775***	-0.00344**		
	(0.00172)	(0.00156)		
portfolio_gdp	-0.00817***		-6.21e-05	
	(0.00114)		(0.000762)	
other_gdp	-0.00936***			-0.00399*
	(0.00124)			(0.00191)
fiscal balance	-0.0358*	-0.0340*	-0.0358*	-0.0379**
	(0.0171)	(0.0184)	(0.0179)	(0.0179)
old-age	0.0373***	0.0371***	0.0387***	0.0418***
	(0.0119)	(0.0113)	(0.0115)	(0.0120)
young-age	0.0442**	0.0544***	0.0723***	0.0810***
	(0.0173)	(0.0186)	(0.0155)	(0.0216)
pop growth	-0.183**	-0.182**	-0.215***	-0.194**
	(0.0690)	(0.0743)	(0.0646)	(0.0694)
oil balance	0.216	0.151	0.237	0.211
	(0.254)	(0.239)	(0.259)	(0.254)
real GDP per capita growth	0.000135	0.0490	-0.0176	-0.0160
	(0.0602)	(0.0633)	(0.0732)	(0.0707)
GDP per capita PPP over US	0.133***	0.137***	0.137***	0.132***
	(0.0115)	(0.0109)	(0.0119)	(0.0139)
crisisd	0.00353	0.0145	0.00413	0.00286
	(0.00833)	(0.0108)	(0.00809)	(0.00799)
Constant	-0.183***	-0.196***	-0.211***	-0.219***
	(0.0223)	(0.0259)	(0.0219)	(0.0265)
Observations	465	521	469	478
R-squared	0.434	0.393	0.414	0.409
Number of groups	27	27	27	27

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2a: Results of determinants of the CA for the core countries

VARIABLES	(1) ca_gdp	(2) ca_gdp	(3) ca_gdp	(4) ca_gdp
nfa_gdp_0	-0.0575***	-0.0413***	-0.0415***	-0.0418***
	(0.00750)	(0.0102)	(0.00950)	(0.00934)
fdi_gdp	-0.0104***	-0.00296**		
	(0.00140)	(0.00104)		
portfolio_gdp	-0.00930***		0.000454	
	(0.00138)		(0.000843)	
other_gdp	-0.00789***			-0.00183
	(0.00100)			(0.00160)
fiscal balance	0.0169	0.0164	0.0172	0.0131
	(0.0302)	(0.0478)	(0.0409)	(0.0399)
old-age	0.0475	0.0602	0.0348	0.0355
	(0.0447)	(0.0521)	(0.0528)	(0.0533)
young-age	-0.00265	0.0621***	0.0768***	0.0757***
	(0.0157)	(0.0118)	(0.00978)	(0.0117)
pop growth	-0.285**	-0.514***	-0.549***	-0.527***
	(0.109)	(0.171)	(0.150)	(0.151)
oil balance	-0.836**	-0.796*	-1.016**	-1.010**
	(0.380)	(0.420)	(0.370)	(0.374)
real GDP per capita growth	0.255	0.247	0.468**	0.461**
	(0.152)	(0.204)	(0.195)	(0.211)
GDP per capita PPP over US	0.166*	0.269**	0.225*	0.224**
	(0.0891)	(0.115)	(0.107)	(0.103)
crisisd	-0.0118**	-0.0113*	-0.0129**	-0.0136**
	(0.00489)	(0.00584)	(0.00599)	(0.00618)
Constant	-0.174*	-0.331**	-0.285*	-0.284**
	(0.0984)	(0.146)	(0.136)	(0.130)
Observations	167	185	167	167
R-squared	0.447	0.354	0.354	0.359
Number of groups	9	9	9	9

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2b: Results of determinants of the CA for the periphery countries

VARIABLES	(1) ca_gdp	(2) ca_gdp	(3) ca_gdp	(4) ca_gdp
nfa_gdp_0	0.0295	0.0767***	0.105***	0.103***
	(0.0254)	(0.0236)	(0.0284)	(0.0230)
fdi_gdp	-0.527***	0.00367		
	(0.0762)	(0.0489)		
portfolio_gdp	-0.564***		0.0221	
	(0.0873)		(0.0163)	
other_gdp	-0.594***			-0.0549***
	(0.0842)			(0.0106)
fiscal balance	-0.0338***	-0.0767***	-0.0645***	-0.0629***
	(0.00939)	(0.0250)	(0.0198)	(0.0195)
old-age	0.0257	0.0520*	0.0364*	0.0207
	(0.0193)	(0.0256)	(0.0188)	(0.0250)
young-age	0.0614*	0.0849*	0.0574*	0.0384
	(0.0344)	(0.0416)	(0.0329)	(0.0326)
pop growth	-0.0952	-0.154	0.197	0.277*
	(0.235)	(0.269)	(0.171)	(0.156)
oil balance	0.0373	0.389	0.479	0.594
	(0.209)	(0.556)	(0.613)	(0.614)
real GDP per capita growth	-0.0742*	0.0549	-0.0867	-0.124
	(0.0413)	(0.130)	(0.117)	(0.0938)
GDP per capita PPP over US	0.119***	0.155***	0.202***	0.173***
	(0.0264)	(0.0335)	(0.0378)	(0.0387)
crisisd	-0.00514	0.00969	-0.00428	-0.00192
	(0.00757)	(0.0241)	(0.0154)	(0.0147)
Constant	-0.173**	-0.248***	-0.240***	-0.181**
	(0.0638)	(0.0623)	(0.0466)	(0.0668)
Observations	117	133	117	121
R-squared	0.663	0.265	0.380	0.393
Number of groups	7	7	7	7

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2c: Results of determinants of the CA for the Central-Eastern NMS

VARIABLES	(1) ca_gdp	(2) ca_gdp	(3) ca_gdp	(4) ca_gdp
nfa_gdp_0	-0.000842	-0.0141	-0.0159	0.00438
	(0.00835)	(0.0126)	(0.0133)	(0.00864)
fdi_gdp	-0.556***	-0.554***		
	(0.0613)	(0.147)		
portfolio_gdp	-0.450***		-0.00237	
	(0.0699)		(0.105)	
other_gdp	-0.504***			-0.417***
	(0.0571)			(0.0797)
fiscal balance	0.0463***	0.0853***	0.0812***	0.0569***
	(0.0148)	(0.0222)	(0.0223)	(0.0147)
old-age	-0.0107	-0.0115	-0.0331	-0.00312
	(0.0172)	(0.0505)	(0.0566)	(0.0165)
young-age	-0.0208	0.0323	0.0775	0.0453
	(0.0273)	(0.0527)	(0.0696)	(0.0539)
pop growth	0.0536	0.0652	-0.0372	0.0583
	(0.0571)	(0.0853)	(0.0695)	(0.0737)
oil balance	0.0334	-0.0381	0.200	0.148
	(0.102)	(0.116)	(0.245)	(0.213)
real GDP per capita growth	-0.111	-0.271*	-0.469**	-0.191
	(0.0832)	(0.130)	(0.188)	(0.147)
GDP per capita PPP over US	-0.0205	-0.0210	0.0160	0.0161
	(0.0198)	(0.0441)	(0.0337)	(0.0343)
crisisd	0.00116	0.0316**	0.0338**	0.0130*
	(0.00379)	(0.0119)	(0.0118)	(0.00624)
Constant	0.0272	-0.0450	-0.0976	-0.0814
	(0.0413)	(0.101)	(0.102)	(0.0597)
Observations	181	203	185	190
R-squared	0.679	0.391	0.182	0.452
Number of groups	11	11	11	11

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 1a: CA misalignments in 2008 (data 2014)

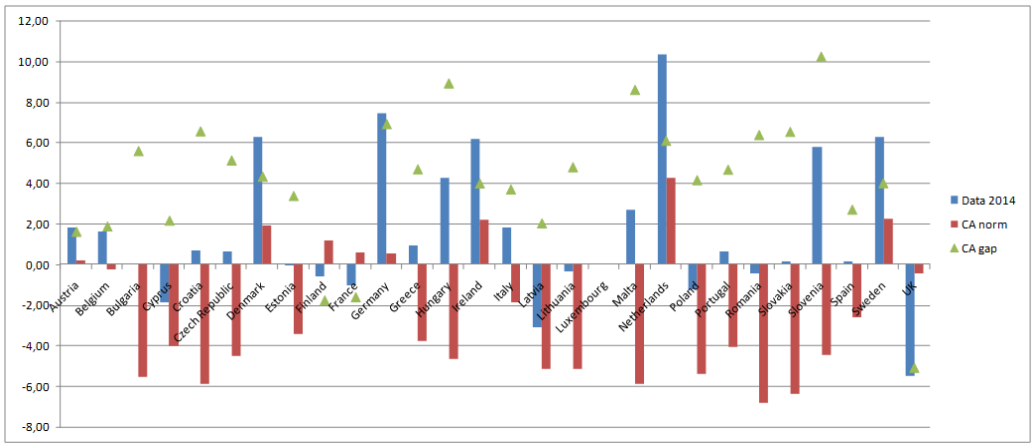


Figure 1b: CA misalignments in 2014 (projections 2020)

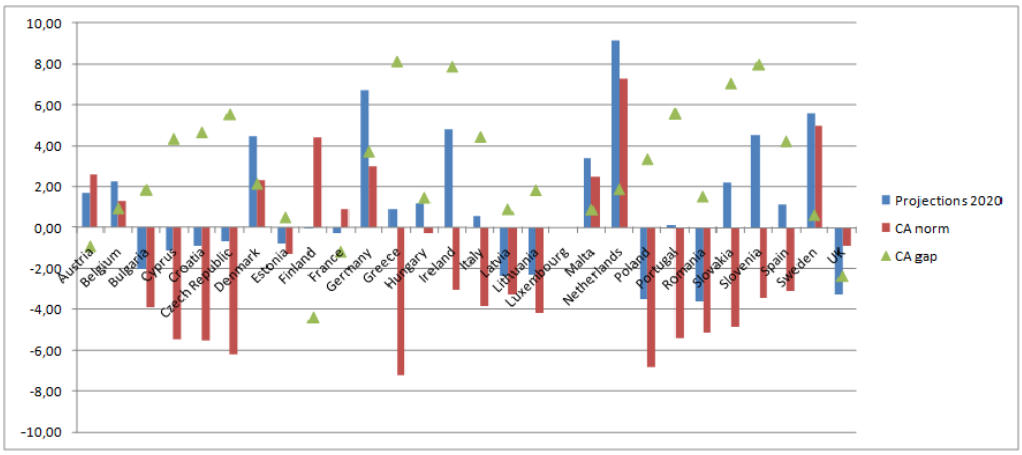


Figure 2: Evolution of CA misalignments for Germany, Lithuania, Spain and the UK

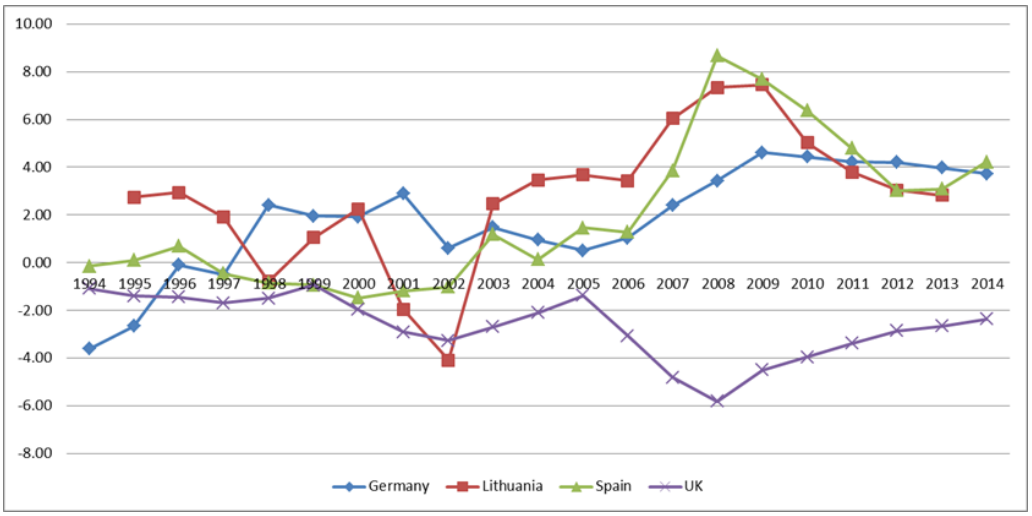


Figure 3a: Evolution of CA misalignments in the core countries

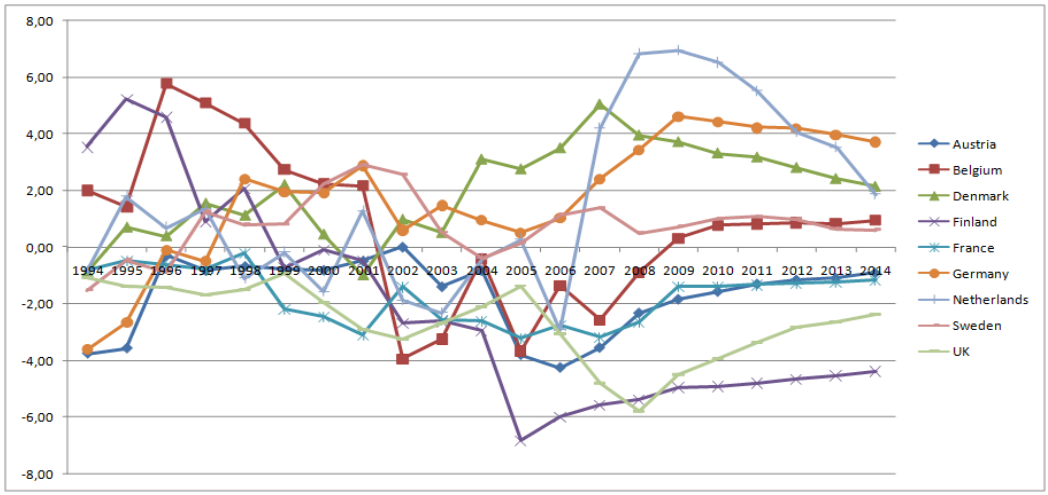


Figure 3b: Evolution of CA misalignments in periphery countries

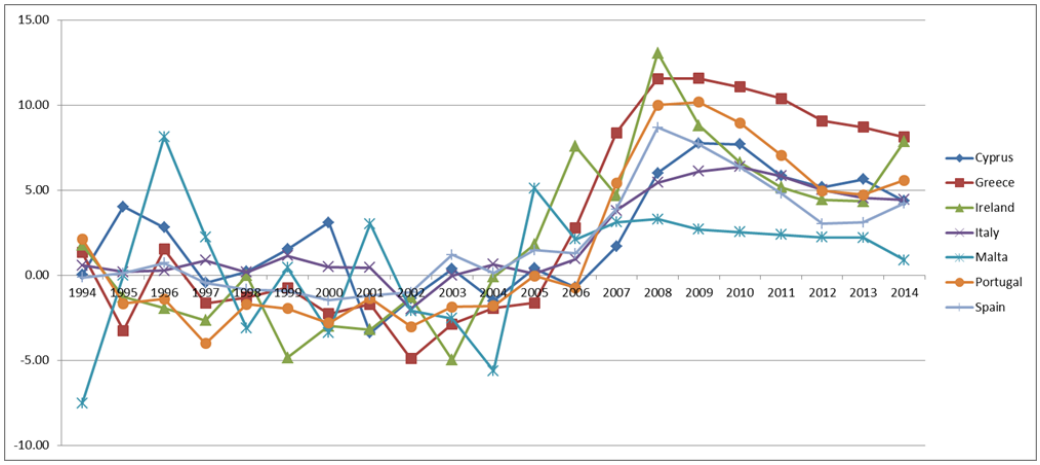


Figure 3c: Evolution of CA misalignments in CEE new member states

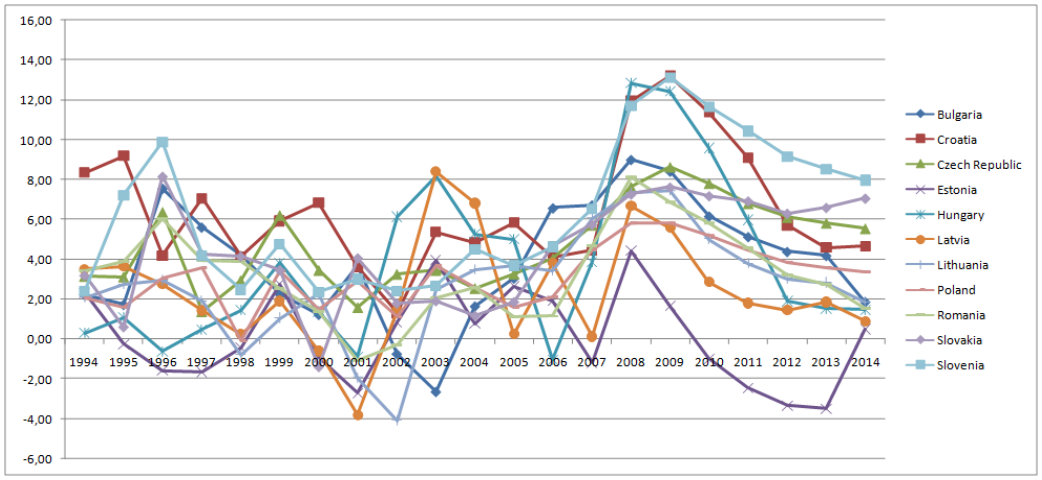
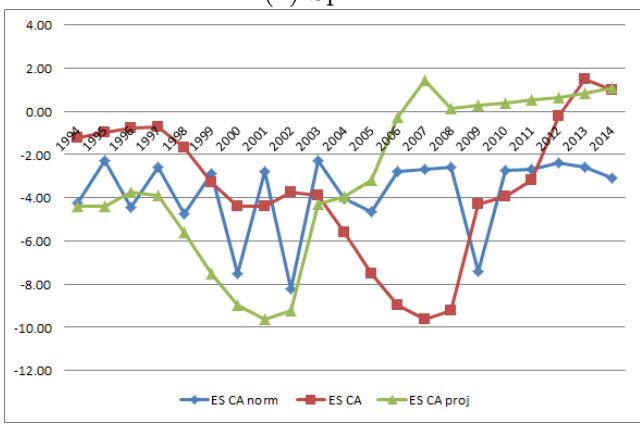
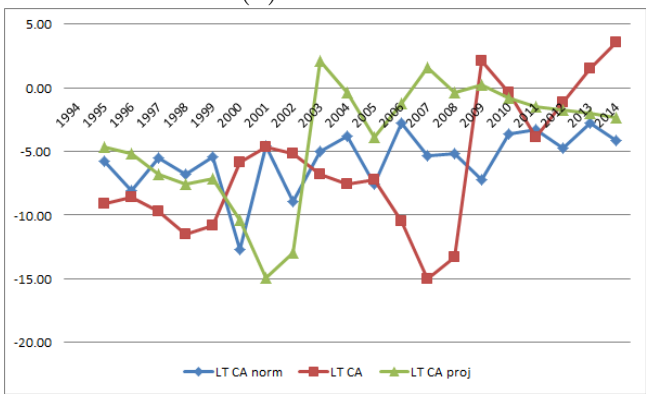


Figure 4: CA equilibria vs. CA actual values vs. CA projected values

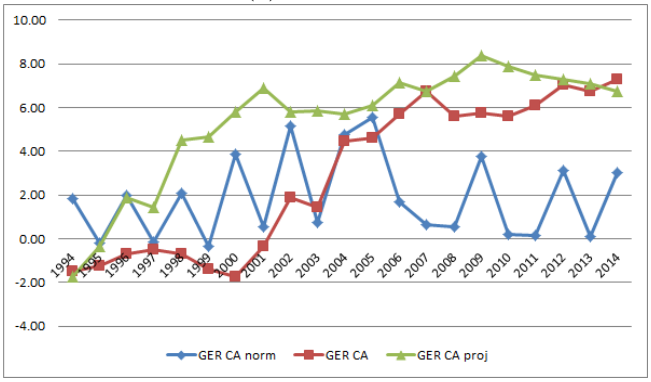
(a) Spain



(b) Lithuania



(c) Germany



(d) the UK

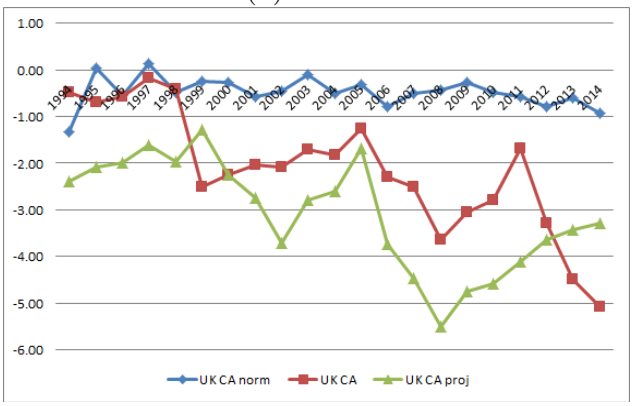

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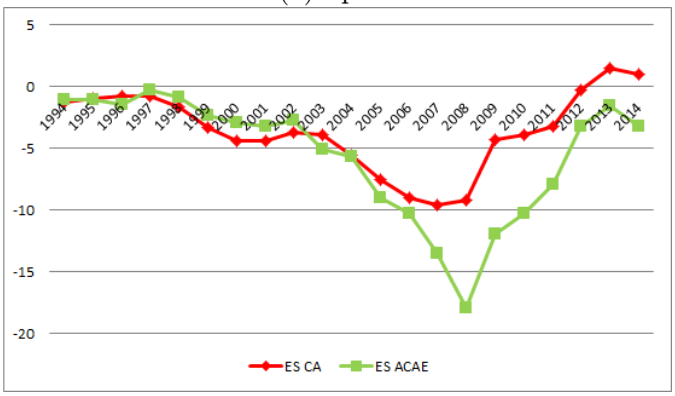
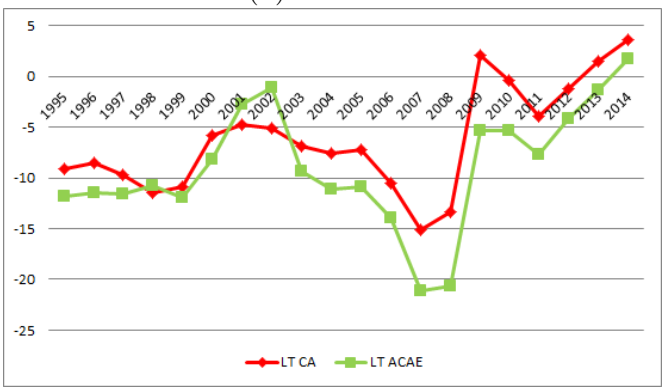
Figure 5: ACAE vs. CA actual values

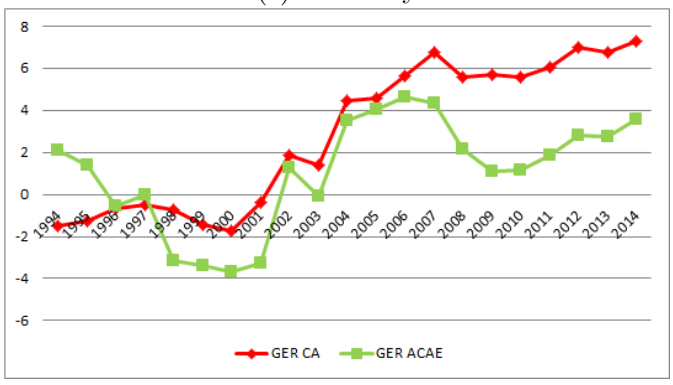
(a) Spain



(b) Lithuania



(c) Germany



(d) the UK

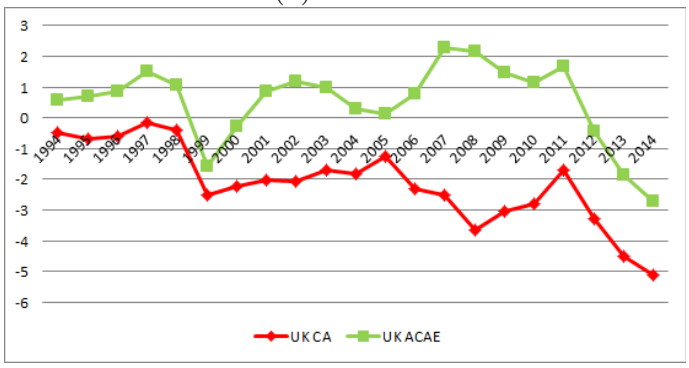

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Table 3: Results of determinants of the CA including REER

	EU27	**core**	**periphery**	**CEECs**
	(1)	(2)	(3)	(4)
VARIABLES	ca_gdp	ca_gdp	ca_gdp	ca_gdp
fdi_gdp	-0.00684***	-0.00590***	-0.563***	-0.551***
	(0.00115)	(0.00121)	(0.0782)	(0.0593)
portfolio_gdp	-0.00731***	-0.00519***	-0.560***	-0.453***
	(0.000748)	(0.00118)	(0.0539)	(0.0661)
other_gdp	-0.00877***	-0.00504***	-0.584***	-0.493***
	(0.00125)	(0.000892)	(0.0558)	(0.0565)
fiscal balance	-0.0369**	0.0322	-0.0408***	0.0446***
	(0.0164)	(0.0504)	(0.0103)	(0.0125)
old-age	0.0342*	0.0576	0.0249	-0.0127
	(0.0168)	(0.0458)	(0.0177)	(0.0180)
young-age	0.0325	0.0252**	0.0439	-0.0369
	(0.0194)	(0.0115)	(0.0315)	(0.0249)
pop growth	-0.178**	-0.330**	-0.237	0.0460
	(0.0752)	(0.125)	(0.262)	(0.0472)
oil balance	0.247	-0.773*	-0.330	0.0843
	(0.277)	(0.411)	(0.259)	(0.119)
real GDP per capita growth	0.0199	0.405	-0.0660	-0.0867
	(0.0543)	(0.276)	(0.0468)	(0.0890)
GDP per capita PPP over US	0.139***	0.182*	0.116***	-0.0168
	(0.0147)	(0.102)	(0.0240)	(0.0209)
log(REER)	-0.0575	0.00244	-0.179**	-0.0280
	(0.0490)	(0.0365)	(0.0786)	(0.0186)
crisisd	0.00821	-0.0115*	-0.00132	0.00649
	(0.00813)	(0.00546)	(0.00562)	(0.00522)
Constant	0.0935	-0.230	0.653*	0.170
	(0.233)	(0.265)	(0.348)	(0.101)
Observations	465	167	117	181
R-squared	0.436	0.307	0.685	0.682
Number of groups	27	9	7	11

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Data description

variables	Sources	Description
ca_gdp	IMF WEO	CA in million USD / over GDP in current USD
nfa_gdp_0	Updated EWN (Lane and MF, 2007)	nfa_gdp in 1993, otherwise the first year available (Croatia 1996; Luxembourg 1999)
fdi_gdp	IMF WEO (net inflows)	Foreign Direct Investments in current USD. Inflows. Over GDP in current USD. From Medina et al., 2010
portfolio_gdp	IMF WEO (net inflows)	Portfolio Investments in current USD. Inflows. Over GDP in current USD.
other _gdp	IMF WEO (net inflows)	Other Investments (mainly bank loans) in current USD. Inflows. Over GDP in current USD.
fiscal balance	IMF WEO	General government revenue minus expenditure over GDP (relative to partners)
old-age	WB WDI	population > 65y/population between 15-65 (relative to partners) - from Chinn & Prasad, 2003 or Medina et al., 2010
young-age	WB WDI	population < 15y/population between 15-65 (relative to partners)
pop growth	WB WDI	Population growth (annual %) (relative to partners).
oil balance	IMF WEO	Ratio of Oil Balance to nominal GDP in current USD. Starting with the October 2013 WEO, the value of oil imports (TMGO) and value of oil exports (TXGO) countries' data are no longer be available in the external WEO Database.
real GDP per capita growth	UNCTAD	Real GDP growth rates per capita, (relative to partners)
GDP per capita PPP over US	IMF WEO	Log of GDP per capita, PPP (constant 2005 international $) over GDP per capita, PPP of US
crisisd	dummy	from 2008 to 2014 =1