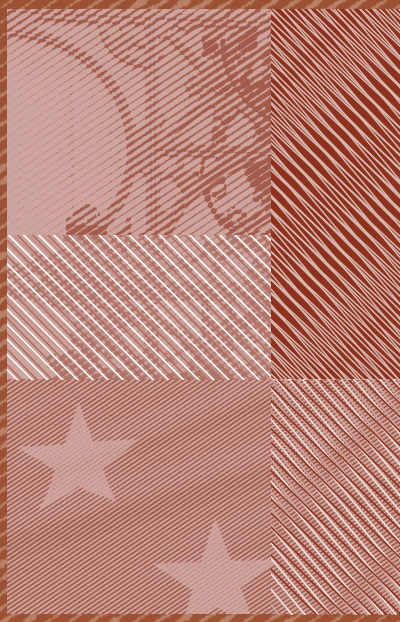
COUNTRIES' SAFETY AND COMPETITIVENESS, AND THE ESTIMATION OF CURRENT ACCOUNT MISALIGNMENTS

2014

Teresa Sastre and Francesca Viani



Documentos de Trabajo
N.º 1401

BANCO DE **ESPAÑA**
Eurosistema

COUNTRIES' SAFETY AND COMPETITIVENESS, AND THE ESTIMATION OF CURRENT ACCOUNT MISALIGNMENTS

COUNTRIES' SAFETY AND COMPETITIVENESS, AND THE ESTIMATION OF CURRENT ACCOUNT MISALIGNMENTS [*]

Teresa Sastre [**] and Francesca Viani [***]

BANCO DE ESPAÑA

(*) The authors would like to thank Luis Catao for help with the data, Aitor Erce, Ángel Estrada, Vincenzo Merella, an anonymous referee, participants to the 2013 workshop of the Center for European Studies, the Joint Informal Workshop among NCBs in Frankfurt, the 2013 meeting of the Spanish Economic Association and internal seminars at the Bank of Spain for useful comments and suggestions. The views expressed in this paper do not necessarily reflect those of the Bank of Spain or the Eurosystem.
(**) E-mail address: tsastre@bde.es.
(***) Corresponding author: francesca.viani@bde.es.

Documentos de Trabajo. N.º 1401

2014

ISSN: 1579-8666 (on line)

Abstract

Current account imbalances and their sustainability are among the most debated international policy issues. Through the recently designed External Balance Assessment methodology (EBA), the IMF estimates the impact of several countries' fundamentals and policies on their current account balance, calculates misalignments in their current account position and indicates policy recommendations which, if implemented, should contribute to reducing these imbalances.

In this paper, we explore some extensions to the EBA, following two courses. First, we distinguish in current account regressions between countries that are considered safe investment destinations and non-safe economies. Since this distinction is likely to acquire special relevance in periods of global turmoil, we also distinguish between periods of global stress and tranquil times. Second, we embed in EBA regressions variables that drive countries' external competitiveness.

Results show that current account dynamics may be affected by competitiveness factors and differ significantly between safe and non-safe economies, with such differences becoming particularly relevant in turbulent times. These findings suggest that EBA regressions may be overlooking the influence of countries' safety and competitiveness on external balances. Our alternative misalignment estimations show larger imbalances than those calculated with the EBA for some Asian economies and smaller imbalances for some high-surplus EU countries.

Keywords: current account, current account benchmark, global imbalances, external balance assessment.

JEL classification: F3, F32, F4, F6.

Resumen

Los desequilibrios del saldo por cuenta corriente y su sostenibilidad están entre los temas de política internacional más debatidos. Mediante una metodología recientemente diseñada —*external balance assessment* (EBA)—, el FMI estima el impacto sobre el saldo por cuenta corriente de sus principales determinantes y de las políticas adoptadas en cada país, calcula el desequilibrio en su saldo exterior e indica recomendaciones de política que, de aplicarse, deberían contribuir a reducir estos desequilibrios.

En este artículo se analizan algunas extensiones a la EBA, siguiendo dos líneas. En primer lugar, en las regresiones se contempla la posibilidad de que el efecto de las variables sobre el saldo por cuenta corriente sea diferente en los países que se consideran destinos seguros de inversión en relación con el efecto en economías no seguras. Dado que esta distinción es probable que adquiera especial relevancia en períodos de crisis global, también se distingue entre períodos de estrés global y tiempos tranquilos. En segundo lugar, se incorporan a las regresiones de la EBA variables que impulsan la competitividad externa de los países.

Los resultados muestran que el saldo por cuenta corriente se ve afectado por factores de competitividad, y responde de manera significativamente distinta en economías seguras y no seguras —diferencias que adquieren especial relevancia en momentos de turbulencias financieras—. Estos resultados sugieren que, entre los aspectos no contemplados en las regresiones de la EBA, el carácter más o menos seguro de las economías o aspectos determinantes de la competitividad son factores relevantes que afectan al saldo exterior de los países. Las estimaciones alternativas de los desequilibrios por cuenta corriente indican que estos son mayores que los calculados por la EBA en algunas economías asiáticas y son más pequeños en varios países de la UE con alto superávit.

Palabras clave: cuenta corriente, saldo óptimo del saldo por cuenta corriente, desequilibrios globales, *external balance assessment.*

Códigos JEL: F3, F32, F4, F6.

1 Introduction

Current account imbalances and their sustainability are among the most debated international policy issues. After having increased steadily during the Nineties, current account divergences across countries experienced only a temporary reduction after the outburst of the global crisis. Indeed, the last three years have witnessed a new widening in current account gaps between surplus and deficit countries at the world level. In principle, current account divergencies may be appropriate if they arise as a consequence of differences in countries' level of development, demographic factors or other structural characteristics. However, if they are not coherent with economic fundamentals, current account divergencies can pose an important threat to global stability and sustainable growth. While unsustainable external deficits may be subject to the risk of sudden reversals, the excessive surpluses that were accumulated by some economies in the years that preceded the crisis might have contributed to the creation of global vulnerabilities. In the face of these risks, it seems crucial to develop analytical methodologies to estimate the size of current account misalignments –the gaps between observed current accounts and the value consistent with fundamentals and optimal policies– and to indicate the policy prescriptions that can contribute to reduce them.

Among the recent advances in this field, are the methods elaborated by the IMF Consultative Group on Exchange Rates (Lee et al. [2008]), the methodological advances proposed by Bussiere et al. (2010), and the most recent External Balance Assessment (EBA) method, developed by the International Monetary Fund and described in the External Sector Report (IMF [2012]). These methodologies represent important policy tools. Indeed, the analyses of misalignments they allow to conduct serve as crucial inputs for the wider assessments of countries' external positions that are periodically published by the IMF, and for multilateral supervision mechanisms, such as the Mutual Assessment Process of the economies belonging to the G-20.

All these methods consist in regressing countries' current account balances on a wide set of fundamental drivers. These can vary across methodologies but generally include some structural determinants (per capita income, population growth), cyclical factors (the output gap) and policy variables (fiscal balance, capital controls). From this exercise, the "desirable" level of current account balances is computed –the one that would be consistent with structural and cyclical factors and with optimal policies.[1] The difference between the current account balance observed in a given year and its desirable value constitutes the current account misalignment.

These methods represent important advances in the estimation of external imbalances. While their regression frameworks allow to base policy advice on rigorous econometric estimates, their multilateral perspective makes it possible to provide policy recommendations to individual economies, having taken into account their global spillovers.

[1] The External Balance Assessment methodology uses specific rules to determine "optimal" policies for each country. The other methods instead assume that the policy variables included in current account regressions are at their optimal level.

Yet, the economic literature suggests that several factors that are still scarcely embedded in standard methods may be important drivers of current account dynamics. First, financial aspects related to the supply and demand of safe assets may play a crucial role in determining external positions. Indeed, an important body of literature suggests that the ability of different countries to supply sound financial assets to savers may have a relevant impact on external balances.[2] As the experience of the United States has shown, countries that are considered issuers of safe assets by international investors can sustain large external deficits for long periods. Their current account dynamics may be less dependent on changes in macroeconomic fundamentals or on cyclical demand factors, and it may be easier for them to borrow from abroad in order to finance their expansionary policies. Arguably, differences between safe and non-safe countries are likely to be exacerbated in periods of global turmoil, when risk aversion and the demand for safe assets typically increase.

A second set of factors that the literature suggests to be among the drivers of current account dynamics but that are scarcely represented in standard methods, are variables reflecting external competitiveness. Factors like R&D, human capital, labor skills, product and labor market flexibility may be crucial in lowering firms' production costs, improve the quality of their products and their market power, and may ultimately have a significant impact on their capacity to service the internal market and to export successfully in the international one. Firms' competitiveness, in turn, may boost a country's trade balance and ultimately affect its current account dynamics.[3]

In this paper, we explore two extensions to standard methods, following precisely these two lines. We take as a benchmark the most recent and advanced tool to detect misalignments, the External Balance Assessment methodology (EBA henceforth), developed by the IMF and described in the External Sector Report (IMF [2012]).[4] Our first extension concerns the role of financial aspects related to the supply and demand of safe assets. Starting from the EBA baseline, we distinguish in current account regressions between countries that are considered safe investment destinations and non-safe economies, based on Standard and Poor's ratings. Since this distinction is likely to acquire special relevance in periods of global turmoil, when risk-aversion typically increases, we also distinguish between periods of global stress and tranquil times. As a consequence, contrary to the EBA, in our extended framework the impact of all determinants of the current account –countries' fundamentals, cyclical factors and policies– is allowed to differ between safe and non-safe countries, and in crisis periods.

Our second extension concerns the role of competitiveness drivers. We embed in the EBA specification two factors that can affect countries' external competitiveness, namely technological progress and human capital. In particular, we build a proxy for the level of education using data on

[2] See, among the others, Caballero et al. (2008). See also Mendoza et al. (2009) for a model in which the equilibrium in the international market for safe assets plays a crucial role in shaping countries' external positions.

[3] See, for instance, Altomonte et al. (2012). Dieppe et al. (2012) show that competitiveness drivers have been among the main determinants of EU countries' export performance in the last years.

[4] With respect to previous methods, the EBA considers a wider set of potential drivers of the current account, which includes some financial factors and capital account drivers. Contrary to other methodologies, it also allows to ascribe estimated current account misalignments to specific policy distortions.

educational attainment from Barro and Lee (2010), and use Total Factor Productivity as a proxy for technological progress.

The purpose of these extensions is twofold. First, to study if countries' safety and competitiveness significantly influence current account dynamics, even controlling for all the other potential drivers of external balances that are already reflected in standard methods. This analysis will indicate whether these methods may be overlooking the impact of some relevant determinants of current account positions, like countries' safety and competitiveness may be. Second, these extensions let us investigate if taking into account the influence of safety and competitiveness on external dynamics changes the estimated misalignments. This will give some indication on whether the imbalances detected through the EBA are robust to a possible inclusion of these factors.

Regression results confirm the hypothesis that the impact of various determinants of external balances differs depending on whether the country is perceived as a safe investment destination, and that these differences tend to acquire special relevance in turbulent times.

In tranquil times, a fiscal deficit tends to generate a current account deficit, consistently with the so-called twin deficit hypothesis. In turbulent times, a fiscal expansion translates into a lower external deficit for countries that are not perceived as safe investment destinations, signaling a reduction in the availability of external financing. Safe economies, on the other hand, do not seem to be subject to the same restrictions.

In stable times, cyclical increases in demand tend to generate current account deficits. During crises, this effect is stronger for non-safe economies. This could be due to the fact that non-safe countries tend to be subject to financial retrenchment in periods of global turbulence. The absence of external financing, in turn, may contribute to make their external balances more dependent on internal demand shocks. The opposite holds for safe economies, which tend to receive capital inflows in crises times due precisely to their characteristics of safe assets producers, so that their current account fluctuations end up being less dependent on demand factors.

We find that the capacity of safe countries to attract investment is less dependent on expected GDP growth. Also, economies that were not considered by investors as safe investment destinations but ended up adopting a currency that was used for reserve purposes –Portugal and Greece in our sample– could somehow increase their credibility due to the international status of their currency, and were able to sustain higher external deficits.

Some of our results are arguably due to the different degree of development of safe economies –by and large industrialized countries– and non-safe ones –typically emerging markets. In safe industrialized countries the current account balance is much more affected by the aging speed, due to the higher average age of the population, which requires higher savings. Increases in social protection tend to lower precautionary savings and reduce external surpluses. We find that this effect is more pronounced in non-safe economies, generally developing countries characterized by a scarce safety net.

As for competitiveness drivers, we find that both the stock of human capital and technological progress are significant determinants of current account balances, although their estimated coefficients are rather small.

Our extensions improve the overall fit of the econometric model with respect to the EBA baseline. Namely, the adjusted R-squared of our extended specification is 9% higher than the one delivered by the EBA specification.[5]

We then turn to studying whether taking into account the influence of safety and competitiveness on external dynamics changes the estimated current account misalignments. To this aim, we use the regression coefficients estimated with our extended specification to compute alternative misalignments for the year 2011. In particular we calculate a first measure of imbalances, which we term "policy misalignment", using the distortions due to the four policy variables considered by the EBA plus the regression residual. This measure is directly comparable to the imbalances estimated by the IMF. Through it, we estimate larger misalignments than those computed through the EBA for some Asian economies –China, Malaysia–, because of larger distortions in their social protection and reserves accumulation policy. Some advanced countries, like Japan, are estimated to have a larger excessive deficit with respect to the one indicated by the IMF, due mainly to a more pronounced distortion caused by their loose fiscal policy. On the other hand, we detect smaller imbalances for high-surplus economies like Germany, Switzerland and the Netherlands, due to a reduction in the regression residual for the year 2011. A higher share of these excessive surpluses is estimated to be caused by the fiscal excesses detected in other countries. Also, our results indicate that the generous health policy implemented in France is not a significant cause of external imbalances, contrary to what is estimated through the EBA.

We exploit the presence of competitiveness drivers to estimate additional current account misalignments due to more structural factors. These additional imbalances, which we name "structural misalignments" reflect only distortions created by a low progress in education and technology adoption, and have no equivalent in the EBA analysis. We find that distortions due to an excessively low TFP growth are generally small. Only for Japan they seem to acquire special relevance, consistently with the notion that TFP growth has lagged behind in this country during its "lost decade". On the other hand, several developing countries exhibit significant external imbalances due to an insufficient level of high education. Among industrialized countries, this issue seems to be particularly relevant for Italy and France.

This paper is related to two main strands of literature. First, contributions dealing with the estimation of equilibrium current account norms and external imbalances. Beyond the IMF research on the topic (Lee et al. [2008], IMF [2012] and IMF [2013]), Bussiere et al.(2010) propose the use of Bayesian averaging techniques to address problems due to model uncertainty in the estimation of current account regressions. De Santis et al. (2011) suggest the use of an alternative weighting scheme to build country-specific world averages. Our work focuses instead on extending standard specifications by distinguishing between safe and non-safe economies, crisis periods and tranquil times, and by introducing factors affecting countries' external competitiveness.

[5] These modifications are particularly useful to reduce the very large residuals that the EBA yields for some countries, although in some cases this improved fit comes at the expenses of a worse match for other economies.

The second body of studies to which this paper is related is the vast literature that studies the determinants of current account balances. To the best of our knowledge, our paper is the first to study how the impact of all the determinants of the current account varies between economies perceived to be safe by international markets participants, and those regarded as non-safe countries. Previous works, such as Lee et al. (2008) and Gruber and Kamin (2007), incorporated dummies for banking crises and the Asian financial turmoil in current account regressions in order to control for shifts in the intercept. We study, instead, how the impact of various current account determinants differs in periods of global turmoil, depending on whether countries are considered to be safe by international investors.

Some of our results highlight the importance of countries' level of development for their external position. Chinn and Prasad (2003) and Medina et al. (2010) are among the few papers in the literature that study this issue by running separate regressions for industrialized and developing countries, generally finding significant differences in the coefficients of net foreign assets and the fiscal balance. We investigate the same issue in the more complete regression framework established by the EBA. Its richer interactions and dynamics allow to uncover additional interesting differences among industrialized and developing countries that are not emphasized in previous works.

Several papers studied the impact of competitiveness factors on external balances. Gruber and Kamin (2007) consider the impact of institutional quality on external dynamics, Lanau and Wieladek (2012) the effects of financial regulation. We focus instead on the effects of educational attainment and technological progress. Educational issues are investigated in Chinn and Prasad (2000). They use average years of schooling as a proxy for human capital, which leads them to capture effects of the educational level that are partly different from competitiveness matters, and leads to different results.[6] Lommantzsch (2011), Dieppe et al. (2012) and Estrada et al. (2013) study the impact of a wide series of competitiveness factors, including technology and R&D, on trade balances and export performance but unlike ours their analysis is restricted to EU countries.

The next Section provides a description of the EBA. Section 3 presents the results of extending the EBA specification by distinguishing between safe and non-safe countries, and between crisis periods and tranquil times. Section 4 introduces variables reflecting countries' competitiveness, while Section 5 shows alternative estimates of current account misalignments computed using our extended specification, and compares them with those presented in the IMF External Sector Report (2012). We draw some conclusions in Section 6.

2 The IMF External Balance Assessment methodology

The purpose of the External Balance Assessment methodology (EBA), presented in the IMF External Sector Report (2012), is to provide an estimation of Current Account (CA) imbalances,

[6] See Section 4 for more details.

defined as misalignments of cyclically-adjusted current account with respect to values consistent with fundamentals and desirable policies.[7]

In particular, the EBA is a regression-based method that consists of: (i) estimating the relationship between the CA and several macro variables; (ii) computing the misalignments with respect to the value that would be consistent with fundamentals and desirable policies; and (iii) attributing these imbalances to different policy distortions. In a first step the CA is regressed on three sets of variables. A first group of regressors reflects structural characteristics of the economy, which may affect the desirable current account balance. In the first version of the EBA these are population growth, the old-age dependency ratio, aging speed, per capita income relative to the US (as a proxy for the level of development), net foreign assets to GDP, the oil balance (only for countries for which this variable exceeds 10% of GDP), expected GDP growth, own currency share in world reserves, and a dummy that indicates if the country is a financial center. A second set of variables, reflecting cyclical factors, comprises the output gap, the commodity terms of trade gap, and the VIX index of financial market volatility as a proxy for global risk aversion. The third group of regressors consists of four policy variables, namely the cyclically adjusted fiscal balance, public health spending (a proxy for the level of social protection), the Quinn capital control index, and the change in international reserves. All variables, with the exception of net foreign assets, are expressed relative to a GDP-weighted world aggregate. The CA equations are panel estimated for 50 advanced and emerging market economies, using data from 1986 to 2010.

In a second step, the normative benchmark values for the four policy variables are specified. In particular, the recommended level of cyclically-adjusted fiscal balance is provided by IMF country desks. The benchmark for public health spending is obtained from a regression of such spending (as a share of GDP) on countries' GDP per capita and their demographics. For capital controls the benchmark is either the cross-country average level of the capital control index or their actual level, if smaller. Finally, for the change in international reserves, the approach is to presume that the change observed in 2011 was appropriate, unless the level of reserves is far in excess of the IMF Reserve Adequacy metric. Policy distortions ("policy gaps" in the EBA terminology) are defined as the difference between observed policies and policy benchmarks. The contribution of each policy gap to CA imbalances is computed by multiplying the relevant regression coefficients estimated in the first step by the corresponding policy gaps. The Total Current Account Gap is computed as the sum of all policy gaps and the regression residual. The Total Current Account Gap constitutes an estimation of the Current Account misalignment, as it measures the deviation of the CA balance observed in a given year from the level that would be consistent with the structural characteristics of the economy, the economic cycle and desirable policies. The CA gaps estimated through the EBA are then considered as inputs, among other indicators, of the broader IMF assessment of countries' external balances that is published in the IMF External Sector Reports.[8]

[7] Other goals of the EBA are the estimation of real exchange rate misalignments and the assessment of countries' external positions sustainability. While the real exchange rate analysis is performed through a regression-based approach similar to the analysis of current account misalignments, the external sustainability assessment consists in evaluating whether the current account projected for the medium term stabilizes a country's net foreign assets position at a benchmark level. See IMF (2012) for a detailed description of these methods.

[8] See IMF (2012) for further details on the methodology and the broader assessment of countries' current accounts.

The EBA constitutes a significant attempt to refine the methodology of misalignment estimation developed in 2008 by the CGER, the Consultative Group on Exchange Rates.[9] Indeed, CGER methods do not aim at identifying the impact on external imbalances of specific policies. In this sense, the EBA seems a more ambitious and useful methodology, as it allows for country-specific policy recommendations that may serve to reduce external imbalances and distortions in the global allocation. Moreover, while the CGER specification does not take into account among the potential determinants of external balances any financial factors, the EBA includes a measure of capital controls policy, an indicator of foreign exchange interventions, an index of financial market conditions and the share of a country's currency held as international reserves.[10]

Yet, some factors that are suggested to be important drivers of CA dynamics may be, at the moment, scarcely reflected in the EBA analysis. Among these, financial aspects related to the supply and demand of safe assets. The idea that safe economies might display different CA dynamics than non-safe countries, and that these differences might get more pronounced in times of global stress, is only partially reflected in the EBA. In particular, this framework includes among the potential drivers of external dynamics the share of a country's currency that is held worldwide as foreign exchange reserves. That share is also interacted with the VIX index of financial market volatility. As a consequence, countries that issue safe heaven currencies (the US, Switzerland, Japan and Euro Area members) are allowed to run higher deficits in tranquil times, and to display even more negative external balances when global financial shocks hit. However, there are reasons to believe that these effects might not be the only ones that are induced by the ability of a country to issue safe assets. First, while countries that issue safe heaven currencies might enjoy a privileged status, this definition of safety might turn out to be restrictive in some cases, since, as it is apparent when looking at country ratings, also economies whose currencies are not used as international reserves might offer safe investment opportunities. Second, the impact of safety perception on the current account might go beyond the ability of a safe country to run higher deficits. Indeed, the current account dynamics of safe countries may be less dependent on changes in their fundamentals or on cyclical demand factors, and it may be easier for them to borrow from abroad in order to finance their expansionary policies. In this sense, it may be that the impact of traditional determinants of the current account –fundamentals, cyclical factors, policy variables– differs between safe and non-safe countries, and that these differences get more pronounced in periods of global stress.

A second set of factors that may be important drivers of CA dynamics but are not embedded in the EBA, are those that may affect a country's international competitiveness –technological progress, human capital, financial market regulation, and labor market flexibility, among the others.

These considerations lead us to explore two extensions to the EBA. We take as a benchmark the baseline approach used in the first version of this method.[11] One extension consists in embedding

[9] See Lee et al. (2008).

[10] The second version of the EBA, described in IMF (2013), includes also a measure of excesses in private credit.

[11] In future research we will extend the analysis to the newly-released second version of that method.

in the baseline regression variables capturing structural factors that may impact countries' competitiveness, namely technological progress and human capital. As a second extension, we distinguish in current account regressions between countries that are considered safe investment destinations and non-safe economies, based on Standard and Poor's ratings. Since this distinction is likely to acquire special relevance in periods of global turmoil, when risk-aversion typically increases, we also distinguish between periods of global stress and tranquil times. These modifications extend the potential role of countries' safety with respect to the EBA, in two respects. First, our notion of safe country is more comprehensive, as it goes beyond those economies whose currencies are used for reserve purposes. Second, and most importantly, we let the impact of all determinants of the CA differ between safe and non-safe countries, and in crisis periods. This allows considering in a more complete way how the ability of a country to issue safe assets can influence its current account dynamics, and to assess whether safety aspects get more relevant in periods of global crisis.

The main question we address using our extended specification is whether countries' safety and competitiveness significantly influence CA dynamics, even controlling for all the other potential drivers of external balances that are already reflected in the EBA. A related issue is whether these extensions lower the residuals delivered by the EBA framework. Indeed, as emphasized in IMF (2012), EBA regressions yield very large residuals for some countries. Since regression residuals add to the measure of external imbalances, the presence of large residuals might complicate the interpretation of the estimated misalignments. In particular, residuals may be interpreted by IMF analysts as reflecting distortions due to policy variables that are not included in the regression –for instance, inefficiencies in product or labor markets or in regulatory macroprudential policies. In that case, part of the estimated misalignment ends up being attributed to unobserved policy factors that are not embedded in the econometric framework .[12] Using our extended specification we also investigate whether a possible inclusion of safety and competitiveness aspects might be useful to lower regression residuals.

The next two sections present the regression exercises in detail and discuss the most important results.

3 Current account dynamics for safe and non-safe countries

3.1 Identifying safe economies and global crisis periods

The identification of safe economies is based on the Standard and Poor's foreign long-term rating of sovereign bonds. In particular, we consider a country to be an issuer of safe assets when it exhibits a rating of AA or above for more than half the years in the sample.[13] According to this criterion,

[12] For instance, in the External Sector Report (2012) it is recommended that peripheral EU countries implement "structural reforms to improve the efficiency of labor and product markets". Since no variable representing these factors is included in the econometric specification, these recommendations are necessarily based on IMF analysts' interpretation of regression residuals.

[13] According to the Standard and Poor's classification, countries are assigned an AA rating if they show a "very strong capacity to meet financial commitments". The time sample is the same as the one considered in the EBA CA regression (1986-2010).

the economies identified as safe are a subset of industrialized countries. Namely, we consider to be producers of safe assets Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, New Zealand, Singapore, Spain, Switzerland, Sweden, the UK and the US.[14]

Following Calvo et al. (2008) and Alberola et al. (2012), we identify years of global stress through fluctuations in the index VIX/VXO of financial market volatility. Namely, we consider years of global turmoil those in which this index jumps more than three standard deviations over its two-quarter moving average. From these episodes, we exclude those in which the VIX is below its full-sample average. The results of this exercise are shown in Figure 1. According to this criterion, we classify as years of global turmoil 1987-1988 ("Black Monday" stock market crash and US Savings & Loans corporations crisis), 1990 (banking crises in Italy, Norway and Brazil), 1997-1998 (financial crises in emerging Asia and Russia), 2001 (Argentinian crisis), 2008 (Lehman Brothers collapse), and 2010-2011 (Eurozone crisis).

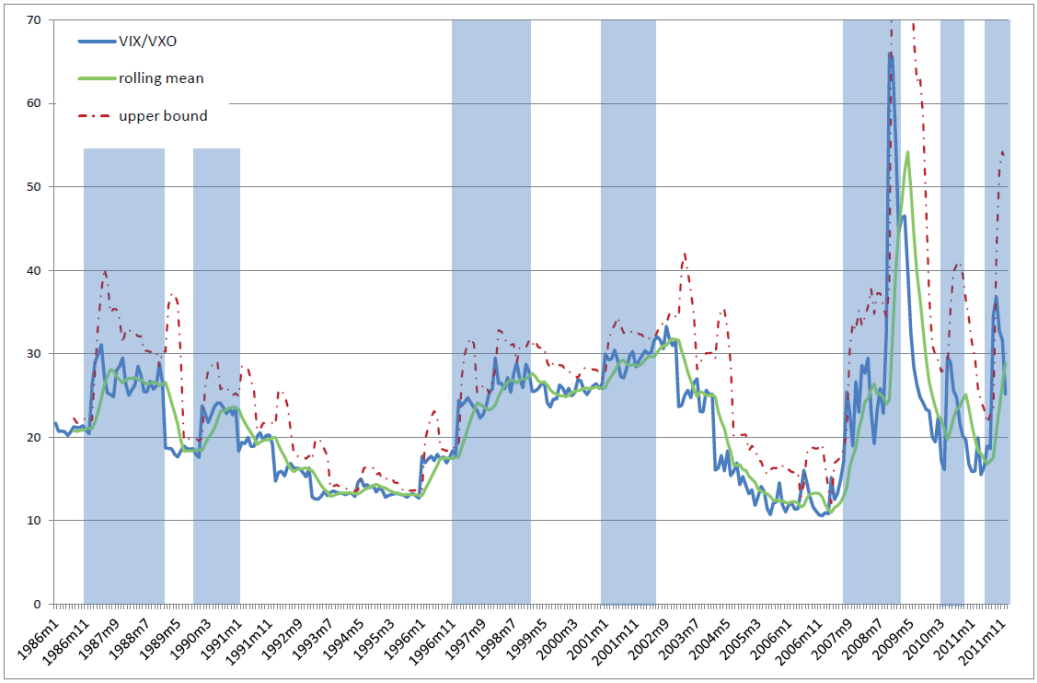


FIGURE 1 – VIX index of financial market volatility and periods of global crisis.

[14] Our safe-country classification is not dynamic, that is, if a country loses the double A rating for a short period of time, it is not shifted in the non-safe group. We decided to adopt a non-dynamic criterion in order to avoid possible issues of endogeneity. In this sense, one could argue that the current account balance is one of the aspects that rating agencies take into account when determining a country's rating. It should be noted that this is only one of the many features that rating agencies declare to be considering in their evaluations (others being per capita income, GDP growth, inflation, fiscal balance, external debt, the level of development), and that several empirical studies did not find it to be a significant determinant of rating decisions. Yet, in order to be on the safe side and reduce a possible endogeneity bias in our regression, we decided to adopt a static concept of safe country, thereby chosing not to shift economies across different groups if their rating changes for a short period. On the other hand, the fact that an economy might not be considered safe anymore in 2011, the year for which misalignments are computed, can be easily taken into account when estimating CA imbalances.

3.2 Empirical results

In order to study whether being a safe country is relevant for CA dynamics, and if this feature assumes a special relevance in periods of global turmoil, we interact the safe-country and the crisis dummies with other variables in the EBA baseline regression. Table 1 shows the results, and compares our extended specification with the EBA. Results indicate significant differences in external dynamics between different groups of countries, and between crisis periods and tranquil times.

With respect to fiscal policy, as in the EBA, we find that a fiscal deficit tends to generate a CA deficit in tranquil times, consistently with the so-called twin deficit hypothesis. However, in crisis periods, this effect varies depending on the characteristics of the economies. Namely, in countries that are not perceived as safe investment destinations, a fiscal expansion in turbulent times translates into a lower external deficit. This seems to indicate that in these economies a fiscal expansion in crisis periods could trigger a loss of confidence in financial markets participants and imply a reduction in the availability of external financing. Safe economies, on the other hand, do not seem to be subject to the same restrictions, as the impact of fiscal deficits on their external accounts does not vary in crisis periods with respect to tranquil times.

In stable times, cyclical increases in demand tend to generate CA deficits. During crises, the external positions of non-safe economies become more dependent on cyclical demand shocks. This could be due to the fact that non-safe countries tend to be subject to financial retrenchment in periods of global turbulence. The absence of external financing may contribute to make their external balances more dependent on internal demand shocks. The opposite holds for safe economies, which tend to receive capital inflows in crises times due precisely to their characteristics of safe assets producers, so that their CA fluctuations end up being less dependent on demand factors.

Not surprisingly, we find that the capacity of safe countries to attract investment is less dependent on expected GDP growth, as signaled by the lower coefficient on forecasted output growth estimated for this group of economies.

In the EBA the own currency's share in world reserves, a proxy for countries' "exorbitant privilege", is found not to be significant. Once we distinguish between safe and non-safe countries, we find that this coefficient is indeed very close to zero for safe economies, but it is instead negative, and significantly so, for non-safe countries. This could indicate that economies that were not considered by investors as safe investment destinations but ended up adopting a currency that was used for reserve purposes (Portugal and Greece in our sample), could somehow increase their credibility due to the international status of their currency, and were able to sustain higher external deficits.

Some of our results are arguably due the different degree of development of safe economies –by and large industrialized countries– and non-safe ones –typically emerging markets. In safe industrialized countries the CA balance is much more affected by the aging speed, due to the

Table 1-a: Safe countries and crisis periods

Dependent variable: current account /GDP; estimation period: 1986-2010; z-statistics in brackets

	EBA	Extended specification
L.Net foreign assets	0,04	0,03
	[5.14]***	[4.84]***
NFA high debt	-0,03	-0,03
	[2.25]**	[2.39]**
Financial Center Dummy	0,04	0,04
	[4.63]***	[5.75]***
Relative GDP	0,04	0,04
	[2.85]***	[2.87]***
Relative GDP*safe		-0,03
		[1.78]*
Oil Trade Balance/GDP (if > 10%)	0,53	0,57
	[5.92]***	[6.37]***
Dependency Ratio	-0,03	-0,01
	[0.75]	[0.21]
Population Growth	-0,39	-0,59
	[0.91]	[1.46]
Aging Speed	0,13	0,01
	[3.43]***	[0.20]
Aging Speed*safe		0,19
		[2.63]***
5-year GDP growth forecast	-0,40	-0,69
	[4.32]***	[4.94]***
5-year GDP growth forecast*safe		0,52
		[2.94]***
L.Public Health Spending/GDP	-0,68	-1,01
	[4.36]***	[5.60]***
L.Public Health Spending/GDP*safe		0,64
		[2.07]**
L.VOX*(1-Kcon)	0,06	0,05
	[3.65]***	[3.47]***
L.VOX*(1-Kcon)*(currency's share in world reserves stock)	-0,16	-0,15
	[2.67]**	[3.51]**

.../...

GLS estimates with panel heteroskedasticity corrected standard errors.

* significant at 10%; ** significant at 5%; *** significant at 1%

safe and crisis are dummies

"L" stands for one-year lag of the respective variable.

Table 1-b: Safe countries and crisis periods

Dependent variable: current account /GDP; estimation period: 1986-2010; z-statistics in brackets

	EBA	Extended specification
.../...		
Own currency's share in world reserves	0,003	-0,14
	[0.18]	[3.06]***
Own currency's share in world reserves*safe		0,16
		[3.51]***
Output Gap	-0,40	-0,31
	[10.93]***	[8.12]***
Output Gap*crisis		-0,26
		[4.95]***
Output Gap*crisis*safe		0,41
		[5.50]***
Terms-of-Trade gap*Openness	0,25	0,25
	[5.51]***	[5.60]***
Cyclically Adjusted Fiscal Balance (inst.)	0,40	0,48
	[3.66]***	[4.47]***
Cyclically Adjusted Fiscal Balance (inst.)*crisis		-0,2
		[2.22]**
Cyclically Adjusted Fiscal Balance (inst.)*crisis*safe		0,28
		[2.15]**
Capital Control Index ("Kcon")	0,03	0,03
	[3.31]***	[3.19]***
Kcon*(Changes in Reserves)/GDP (inst.)	0,40	0,54
	[2.22]**	[2.99]***
Germany dummy	0,03	0,01
	[2.79]***	[1.62]
Sweden dummy	0,06	0,05
	[5.96]***	[5.12]***
Malaysia dummy	0,06	0,06
	[2.37]**	[2.79]***
Constant	0,003	-0,005
	[0.47]	[0.75]
Observations	1099	1099
Number of countries	50	50
Adjusted R-Squared	0,60	0,63

GLS estimates with panel heteroskedasticity corrected standard errors.

* significant at 10%; ** significant at 5%; *** significant at 1%

safe and crisis are dummies

"L" stands for one-year lag of the respective variable.

higher average age of the population, which requires higher savings. In the EBA, health expenditure is found to negatively affect the CA balance, as a low level of social protection typically boosts precautionary savings. We find that in non-safe economies, by and large developing countries characterized by a low level of social protection, health expenditure has a higher impact on external balances. Consistently with the findings of Chinn and Prasad (2003), we also show that the impact of relative per capita income, a proxy for the relative level of development, on external accounts is much smaller for industrialized safe countries.[15]

EBA includes country dummies for Germany, Sweden and Malaysia. This is due to the fact that the regression yields very large residuals for these economies. Country-dummies are therefore introduced to mitigate a possible omitted-variable bias.[16] It is interesting to notice that, once we distinguish between country groups and crisis periods in our extended specification, the dummy variable for Germany is not significant anymore. Also, the adjusted R-squared of our extended specification is 5% higher than the one delivered by the EBA specification

Overall, our regression exercise suggests that safety aspects may be significant determinants of external balances well beyond the role they are currently allowed to play in the EBA specification.

4 The impact of competitiveness on the current account balance

In order to select the competitiveness variables, we first consider the sectoral subindexes (pillars) included in the Global Competitiveness Index (GCI), compiled by the World Economic Forum. One interesting advantage of the GCI is that is constructed to define competitiveness beyond traditional indicators of price competitiveness such as real exchange rate and unit labor costs fluctuations. The twelve "pillars" of which it is composed –all factors that are widely accepted as being critical to economic growth– may well boost competitiveness both by lowering firms' production costs and prices (what is usually known as price competitiveness) or by improving product quality (non-price competitiveness). The index covers aspects such as the quality of institutions and education, technological adoption, goods, labour, and financial markets efficiency and development.[17] The main problem with the GCI is its reduced time coverage (2006-2012), which prevents their use in a complete econometric exercise like EBA. However, it is still possible to check which pillars are more relevant in CA regressions, when considered jointly with the EBA variables. Results show that the GCI pillars representing higher education, technological readiness and innovation are the most significant ones, and increase the adjusted R-squared of EBA regressions.[18]

[15] We also found that the coefficient of the oil balance differs among safe and non-safe economies, with a much higher impact estimated for non-safe countries than for safe ones. This seems to suggest that oil-exporting industrialized countries may manage to invest more effectively oil proceedings domestically. Yet, it should be noted that estimating a different oil balance coefficient for safe and non-safe countries amounts to discriminate only among two economies, Russia and Norway, respectively the only non-safe and safe country with an oil trade balance higher than 10% of GDP. Moreover the oil coefficient estimated this way produced a very high residual for Russia in 2011. For these reasons, we ultimately decided not to introduce this distinction in the final version of our extended specification.

[16] Country dummies are used only for regression purposes. Their estimated coefficients are not included in the calculation of CA norms. It should be also noticed that the second version of the EBA does not make use of any country dummy.

[17] See see Schwab (2012) and Appendix B for further details on GCI indexes.

[18] The results of this exercise are shown in Table 6 in Appendix B. Also the GCI pillar reflecting financial development enters significantly the EBA specification, while goods and labor market efficiency are not significant.

Accordingly, we introduce in the EBA specification two new variables, reflecting, respectively, higher education and technological progress.[19] [20] The proxy for the former is the share of the population, older than 25, that completed upper tertiary studies. Data are from Barro and Lee (2010).[21] We capture the effects of technological progress using Total Factor Productivity (TFP).[22] Both education and TFP are expressed as deviations from a GDP-weighted world average, consistent with the approach adopted in the EBA. For TFP, we also distinguish between safe and non-safe countries, following the classification introduced in the previous section. Finally, both variables enter the regression in first differences. Table 2 shows the results of our extended specification.

Both the stock of human capital and technological progress are significant determinants of CA balances, although the estimated coefficients are small, and these additions increase by less than 2% the explanatory power of the EBA regression.

The expected impact of productivity on the current account is, in principle, rather ambiguous and dependent on other factors. Productivity improvements, especially in the tradable sector, are likely to have a positive effect on price and non-price competitiveness and on current account balance, although some minimum TFP threshold may be required as shown by Altomonte et al. (2012). On the other hand, countries with higher or increasing productivity tend to experience rising investment rates and current account deficits. In countries which are in the low stages of development this is a fairly common experience, which may also be conditioned by aspects such as financial development and business friendliness. In our empirical model the first effect is captured in the case of the safest industrialized countries –those where a minimum productivity threshold has been attained by a significant share of firms. In the less safe developing countries, the negative effect through rising investment and lower savings –the anticipation of a higher stream of future income prompts agents to bring forward consumption decisions– might be more relevant, but still conditioned by each country financial development. This may explain why we do not find a significant effect of productivity growth on their current account.

According to the theoretical literature, human capital plays an important role in determining economic growth and competitiveness, but empirical studies have had strong difficulties to find

[19] More precisely, we consider both innovation and technology adoption to be part of technological progress.

[20] Recently, several works have shown that restricting the attention to indicators that have been traditionally used to measure price competitiveness only, like unit labor costs or a country's terms of trade, may be limiting. Altomonte (2012), Dieppe et al. (2012) and Estrada et al. (2013) find that these measures of price competitiveness are only imperfectly correlated with firms' ability to operate in international markets and with countries' export performance. For these reasons we prefer not to use traditional indicators that measure exclusively price competitiveness. In order to capture both the price and the non-price channel, we use instead proxies for technological progress and human capital –factors that have been indicated as important determinants of firms' export capacity and that may well act both through a reduction in production costs and through an increase in product quality.

[21] Original data, which take the form of 5-years surveys, were interpolated using a spline function. See the data appendix for additional details.

[22] For the methodology used to estimate TFP see Hall (1988) and Appendix C. See also Appendix A for a description of the data used.

convincing evidence for this. An exception is Altomonte et al. (2012) who find that the quality of human resources is among those factors enhancing competitiveness at firm-level. We also find that an increase in the share of the population with a tertiary level of education has a positive impact on external surpluses. It is interesting to compare this result with the findings of Chinn and Prasad (2000), even though roughly half of the developing economies in their sample is constituted by low-income African countries, which are absent from our dataset. They proxy the human capital level with a function of the average number of schooling years in the population. The negative impact of education on current account balances that they find is likely to reflect the external financing attracted by the higher productivity of capital that an additional year of education induces in low-income countries. Our proxy of education is based instead on data on educational attainment in upper tertiary studies, which reflects a highly specialized stock of human capital. Its impact on current account balances is estimated to be positive, signaling that in industrialized and developing countries a highly-specialized education can boost non-price competitiveness with positive effects on external balances.

Safe countries, crisis periods and competitiveness

Extending the EBA specification with both the safe countries and crisis distinction, and competitiveness factors yields very similar coefficients as those discussed above. Results are reported in Table 3 (see Appendix D). Yet, three findings are worth noting. First, when introducing countries' TFP, the different impact on external balances of relative income estimated for safe and non-safe economies in Table 1, disappears.

Second, when controlling for TFP, significant differences in the impact of terms of trade fluctuations among safe and non-safe countries in crisis times, emerge –differences similar to those encountered for the cyclical demand shocks reflected in the output gap. Namely, while terms of trade appreciations tend to generate CA surpluses in tranquil times as in the EBA, in periods of global stress the dependence of the external balance on commodity price fluctuations gets more pronounced for non-safe countries and less pronounced for safe economies.

A third finding to be noted is that allowing for a more comprehensive role of safety and competitiveness drivers in CA regressions improves the overall fit of the econometric model with respect to the EBA baseline. Namely, the adjusted R-squared of our extended specification is 9% higher than the one delivered by the EBA baseline. Our modifications are particularly useful to reduce the very large residuals that the EBA regressions yields for some countries. Figure 2, shows the Sum of Squared Residuals for Poland, Portugal, Denmark, Sweden, Malaysia, Russia, Finland, Thailand and Germany –among the countries for which the EBA regressions produces the largest residuals. For several of these economies, the Sum of Squared Residuals delivered by the extended specification is much lower than the one produced by the EBA baseline. A closer inspection, however, reveals that the improved fit for high-residual countries in some years comes sometimes at the expenses of

Table 2: Non-price competitiveness factors

Dependent variable: current account /GDP; estimation period: 1986-2010; z-statistics in brackets

	EBA	Extended specification
L.Net foreign assets	0,04	0,04
	[5.14]***	[5.15]***
NFA high debt	-0,03	-0,03
	[2.25]**	[2.00]*
Financial Center Dummy	0,04	0,04
	[4.63]***	[4.60]***
Relative GDP	0,04	0,04
	[2.85]***	[3.04]***
Oil Trade Balance/GDP (if > 10%)	0,53	0,48
	[5.92]***	[5.10]***
Dependency Ratio	-0,03	-0,04
	[0.75]	[0.93]
Population Growth	-0,39	-0,43
	[0.91]	[1.09]
Aging Speed	0,13	0,12
	[3.43]***	[3.29]***
5-year GDP growth forecast	-0,40	-0,64
	[4.32]***	[5.74]***
L.Public Health Spending/GDP	-0,68	-0,79
	[4.36]***	[5.14]***
VOX*(1-Kcon)	0,06	0,06
	[3.65]***	[4.07]***
L.VOX*(1-Kcon)*(currency's share in world reserves stock)	-0,16	-0,18
	[2.67]***	[3.02]***
Own currency's share in world reserves	0,003	0,002
	[0.18]	[0.14]
Output Gap	-0,40	-0,40
	[10.93]***	[10.51]***
Terms-of-Trade gap*Openness	0,25	0,18
	[5.51]***	[3.82]***
Cyclically Adjusted Fiscal Balance (inst.)	0,40	0,40
	[3.66]***	[3.74]***
Capital Control Index ("Kcon")	0,03	0,03
	[3.31]***	[3.66]***
Kcon*(Changes in Reserves)/GDP. instrumented	0,40	0,42
	[2.22]**	[2.32]**
D TFP		0,002
		[0.93]
D TFP*safe		0,01
		[2.42]**
D tertiary education		0,01
		[2.47]**
Germany dummy	0,03	0,03
	[2.79]***	[2.45]**
Sweden dummy	0,06	0,06
	[5.96]***	[5.85]***
Malaysia dummy	0,06	0,06
	[2.37]**	[2.70]**
Constant	0,003	0,003
	[0.47]	[0.19]
Observations	1099	1072
Number of countries	50	50
Adjusted R-Squared	0,60	0,61

GLS estimates with panel heteroskedasticity corrected standard errors.
* significant at 10%; ** significant at 5%; *** significant at 1%
safe is a dummy
"L" stands for one-year lag of the respective variable.
"D" denotes first differences of the respective variable.

a worse fit in other time periods or for other economies. Figure 7 in the Appendix shows the CA series and the fitted values obtained, respectively, through the EBA and the extended specification. For 9 countries the extended specification yields a better fit for all the years considered, while for 3 economies the fit is worse along the whole time sample. For all the other countries, improvements in some years seem to come at the expenses of a lower fit in other periods.

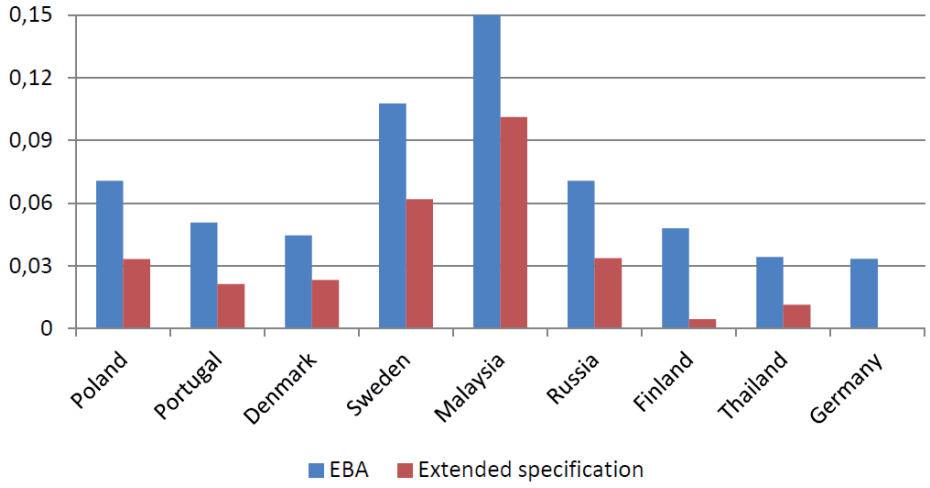


FIGURE 2 – Sum of Squared Residuals, selected countries.

5 Estimating current account misalignments

Using the regression coefficients estimated with our extended specification and reported in Table 3, we compute alternative CA misalignments for the year 2011 and compare them with those estimated by the IMF through the EBA. In particular, we calculate a first measure of imbalances, which we term "policy misalignment", using the distortions due to the four policy variables considered by the EBA plus the regression residual. This first measure is the one that is directly comparable to the imbalances estimated by the IMF. We then exploit the presence of competitiveness drivers to estimate additional CA misalignments, due to more structural factors. These additional imbalances, which we name “structural misalignments” reflect only distortions due to low progress in education and technology adoption, and have no equivalent in the EBA analysis. The next sections report our results for the two types of imbalances.

5.1 Policy misalignments

Policy misalignments are built using only the distortions due to the four policy variables considered by the EBA plus the regression residual, and are therefore directly comparable to the misalignments estimated by the IMF. From an operative point of view, the resulting CA misalignments are the sum of the four policy gaps due to fiscal, health, capital controls and reserves policy, and the residual for the year 2011. We take as optimal values for the four policy variables those provided in the EBA dataset. Figure 3 shows the total CA misalignments estimated using our specification and compares them with those computed through the EBA.

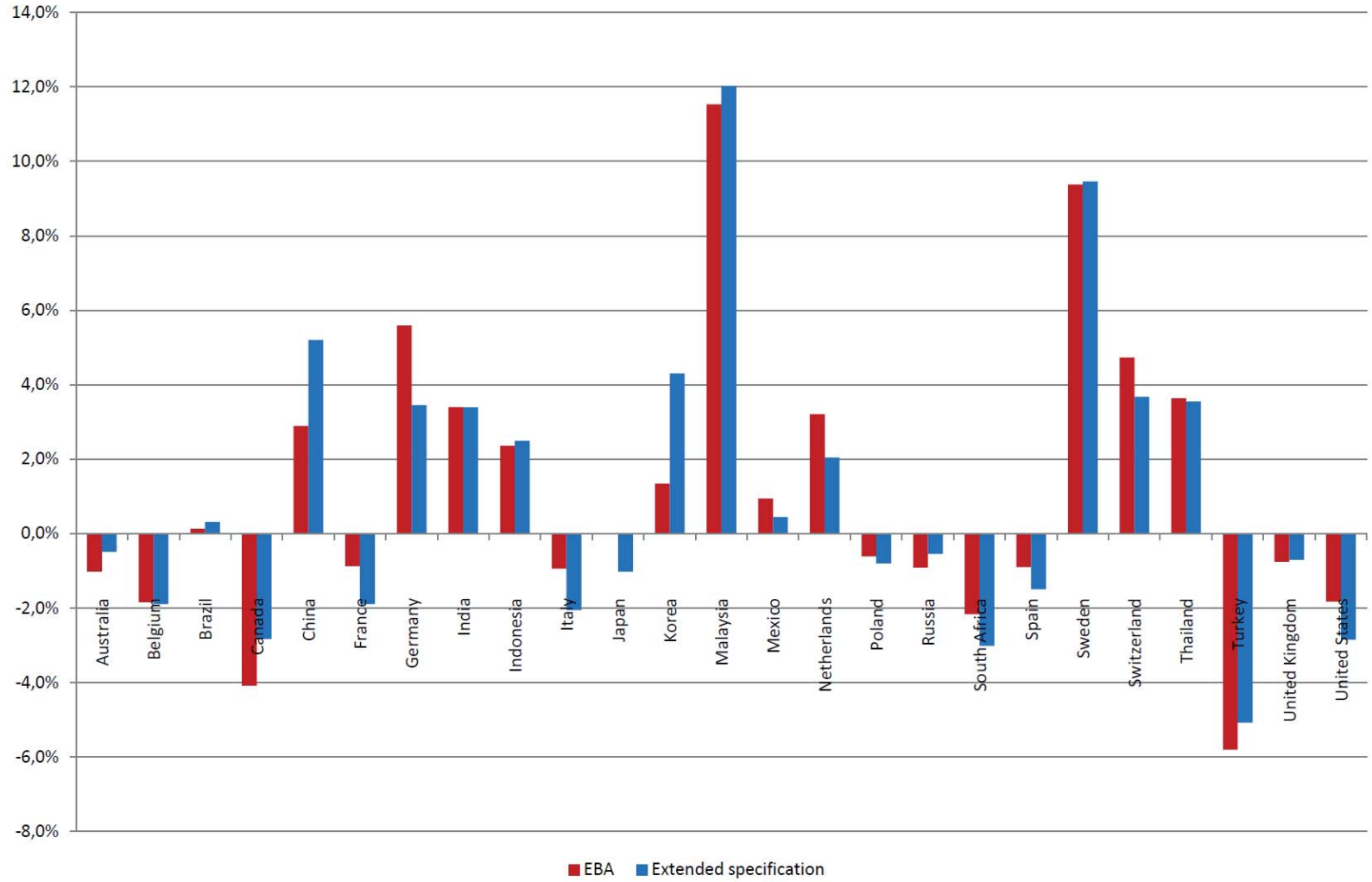


FIGURE 3 – Current account misalignments estimated for 2011, due to fiscal, health, capital controls and reserves policy distortions, plus the residual.

The EBA analysis, reported and discussed in detail in the IMF External Sector Report (2012), detects excessive CA surplus for several Asian economies. Within the EU, excessive surpluses are detected for Germany, Sweden and the Netherlands, and are mostly due to the large residuals that the econometric specification yields for these countries. Furthermore, most OECD countries exhibit excessive CA deficits, mostly due to an excessively loose fiscal policy and to other unobservable factors, reflected again in the residual.

Using the coefficients from our extended regression specification, we estimate larger misalignments for countries like China, Japan, Korea, Italy, Spain and Malaysia, whereas we detect smaller imbalances for Australia, Canada, Germany, the Netherlands, Switzerland and Turkey.

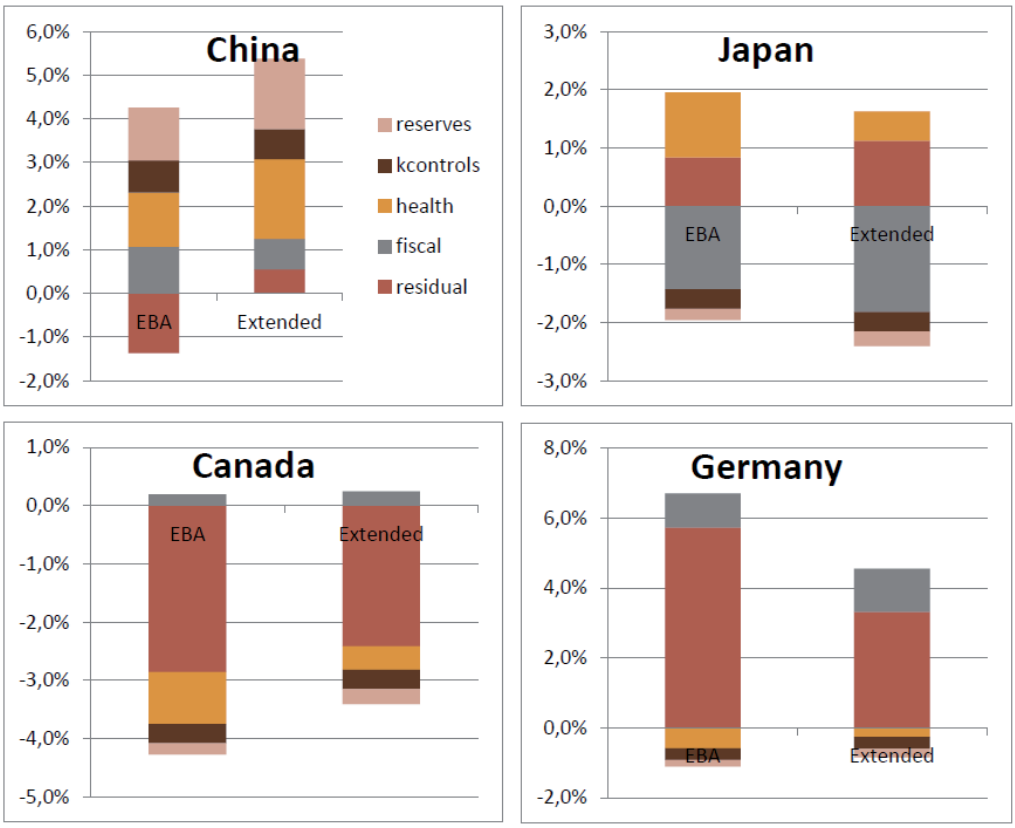


FIGURE 4 – Policy misalignments decomposition, selected countries.

Table 4 in the Appendix shows for all countries how much each of the four policy distortions (policy gaps) and the regression residual relative to 2011 contribute to the estimated misalignments. Figure 4 gives a graphical representation of the same decomposition for some selected economies. For some Asian countries (China in the picture, but the findings extend to Malaysia as well) we estimate a larger excessive surplus with respect to the one computed through the EBA, due essentially to the more pronounced distortions caused by the inefficient health expenditure of these countries and by their reserve accumulation policy. Indeed, when distinguishing among groups of countries in CA regressions, we found that for non-safe economies, by and large developing countries characterized by a low level of social protection, health expenditure has a stronger impact on external balances. This implies that, in countries with an insufficient health expenditure that

originates excessive savings and a surplus higher than the desirable one, this distortion acquires more importance, and the external misalignment is larger than the one estimated through the EBA.

In the case of some industrialized countries –Japan in Figure 4– we compute higher misalignments with respect to the EBA mainly because of two factors. The first is the smaller impact on external balances of health expenditure, which we estimate for safe industrialized countries. This leads to compute a smaller (positive) health policy gap. The second factor is a larger fiscal distortion. Indeed, using our extended specification we estimate that, for safe countries, the impact of fiscal deficits on external balances is higher. Therefore, the effect of the fiscal policy gap for economies like Japan, with an excessively lax fiscal policy in 2011, is larger than estimated by the IMF.

In the case of Canada, we estimate a lower excessive deficit due to a less relevant health distortion and to a smaller regression residual. The reduction in the residual, in turn, is due to the lower estimated impact of commodity terms of trade fluctuations on the CA balance of safe countries during periods of global stress. For economies that are heavily dependent on commodity exports (Canada in the picture, but the findings extend to Australia as well), the lower sensitivity of external balances to relative price fluctuations translates into a less positive CA norm for a year, like 2011, in which the countries' terms of trade are improving.

Finally, for a set of industrialized countries that exhibit large external surpluses –Germany in the graph, but similar considerations also apply to Switzerland and the Netherlands– we estimate a smaller external misalignment than the EBA, due essentially to a higher estimated "desirable" surplus, which translates into a lower positive regression residual. There are mainly three reasons for the higher desirable surplus estimated in 2011 for these countries. First, we find that in safe industrialized economies, the aging speed of the population influences more the CA, as the high average age of their population requires a higher level of savings. Second, these economies are characterized by a high optimal health expenditure. This, according to the EBA regression results, tends to imply an optimal external deficit. Since in our specification health expenditure has a small impact on the external position for industrialized economies, we estimate their desirable CA position to be less negative. Finally, these countries were characterized in 2011 by a large demand (positive output gap), which, according to the EBA, tends to translate into an optimal external deficit. In our specification, this factor is found to be less important for safe economies in periods of global stress, and their desirable external position is computed to be less negative. All these factors, together, imply that the desirable surplus for these countries in 2011 is higher than estimated through the EBA, and their positive regression residual and external misalignments lower. It should also be noted that in our specification the impact of fiscal deficits on external balances is higher. This implies that a larger share of the external distortions estimated for EU surplus countries is due to their relatively rigorous fiscal policy, as indicated by the grey area in the graph. As all regressors are expressed relative to a world average, it should be emphasized that this fiscal policy gap is not due to surplus countries' own policies, but rather to the fiscal excesses detected in other economies.

Other interesting results concerning EU economies are reported in Table 4. Our results indicate that the generous health policy implemented in France is not a cause of external imbalances, contrary to what is estimated through the EBA. On the other hand, the Spanish fiscal policy, which the IMF considers to have been too loose in 2011, might have a higher impact on external imbalances.

5.2 Structural misalignments

In order to estimate the distortions due to a low progress in education and technology adoption, we first need to establish desirable values for these variables. In a first approximation, we divide countries according to their level of development and to their geographical area following the classification in Barro and Lee (2010). For each area we compute the average educational level (more precisely, the average share of the 25+ population that has completed a tertiary degree) and the average TFP level. If a country exhibits in 2011 values for these two variables that are above the average, we assume that the change observed in 2011 is optimal. Otherwise, if an economy is below the average, say, for education, we assume that the optimal change in the level of education in 2011 is the one that brings it in line with the group average.

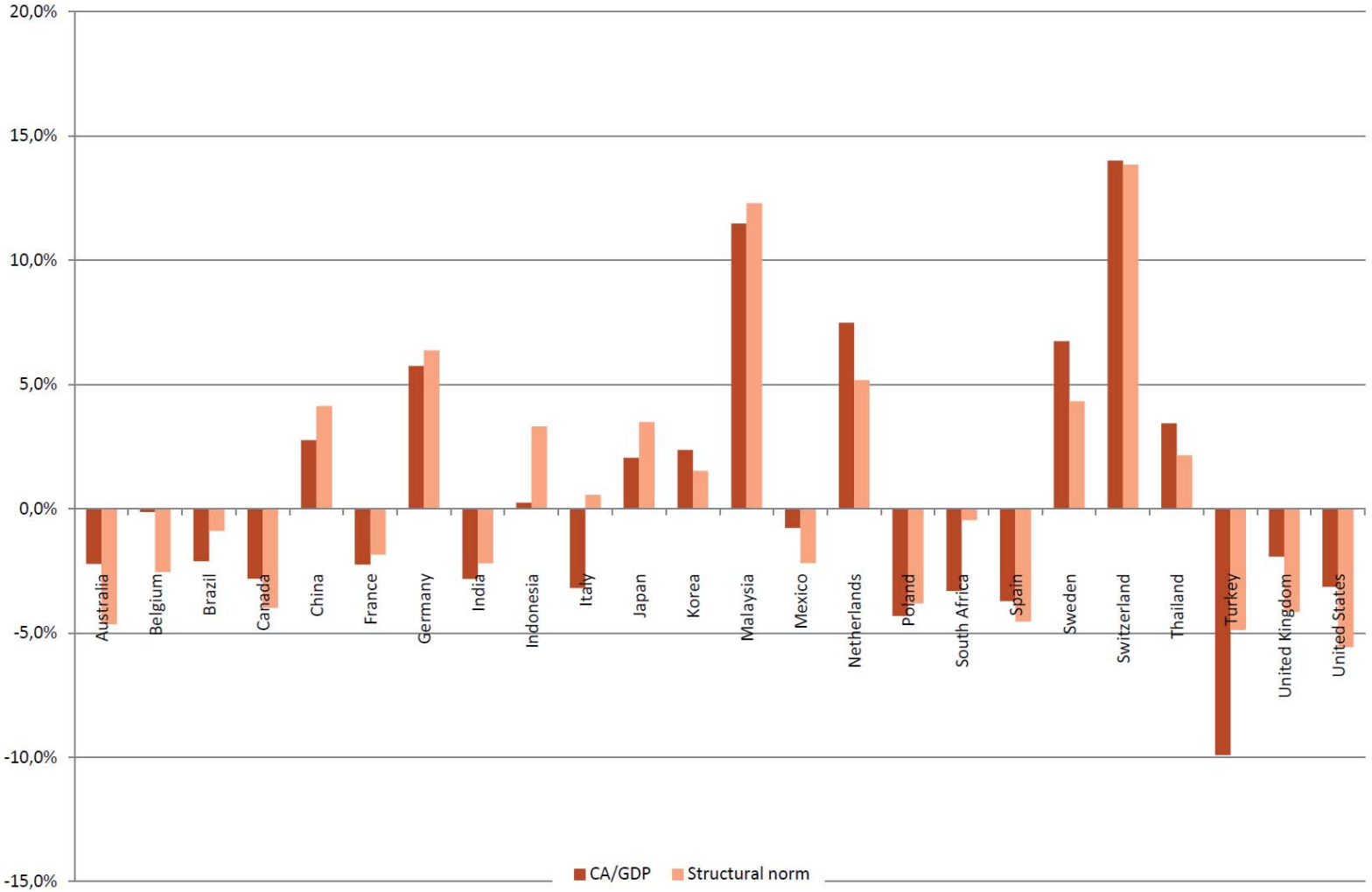


FIGURE 5 – Current account balances observed in 2011 and their structural norms.

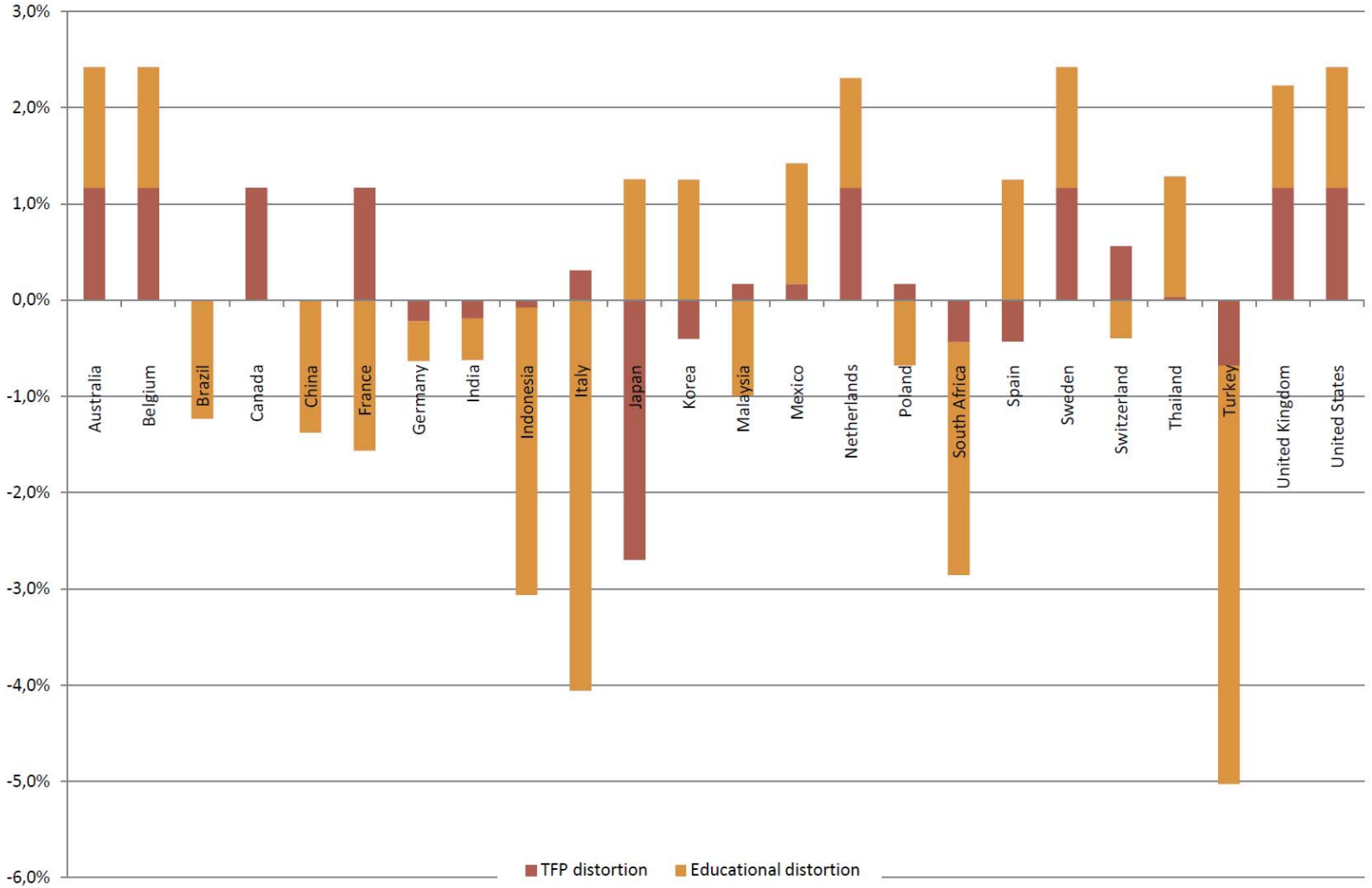


FIGURE 6 – Current account misalignments estimated for 2011, due to structural policy distortions.

Figures 5 and 6 and, in the Appendix, Table 5 show the results. Figure 5 reports the CA/GDP ratios observed in 2011, and the corresponding structural norms computed assuming that TFP growth and educational attainments of all the countries are at their optimal level. We found for several countries quantitatively important differences between observed external balances and their desirable structural norms, in the order of 2% of GDP or more. Figure 6 ascribes these distortions to different structural factors. External distortions due to an excessively low TFP level (relative to the reference group of economies) are generally small.[23] Only for Japan they seem to acquire special relevance, consistently with the notion that TFP growth has lagged behind in this country during its "lost decade". Several developing countries exhibit significant external imbalances due to an insufficient level of high education. Among industrialized countries, this issue seems to be particularly relevant for Italy and France.

6 Concluding remarks

In this paper we study how current account dynamics differ between safe and non-safe economies, focusing in particular on times of global stress. We also investigate how external dynamics are influenced by factors that determine countries' competitiveness. Our regression results show that the impact of various determinants of external balances differs depending on whether the country is perceived as a safe investment destination, and on whether the period is characterized by financial turmoil. We also find that competitiveness factors are among the significant drivers of the current account for many countries. These results suggest that the method used by the IMF to detect current account misalignments, the EBA, may not fully take into account safety aspects and competitiveness factors as determinants of current account dynamics. Alternative misalignments for 2011 computed through our extended specification, signal higher imbalances for Asian countries and lower ones for some high-surplus advanced economies.

Interesting extensions to our framework could encompass investigating the role of countries' level of development in driving external dynamics, endogenizing rating decisions through auxiliary regressions, determining optimal values for competitiveness variables from data on education enrollment and from a model of technology diffusion, and considering the role of other, possibly continuous proxies for safety (CDS spreads) and of other competitiveness factors (financial market deepness, labor market flexibility).

[23] As in the EBA, variables are expressed in deviations from a world aggregate. Therefore positive gaps signal here that a country does not have any domestic distortion due to a certain factor (for instance, because its educational level is above its group average), but that other countries in the world do.

References

[1] Alberola, E., Erce, A. and J.M. Serena (2012), "International reserves and gross capital flows. Dynamics during financial stress", *Bank of Spain working paper* n.1211.

[2] Altomonte, C., Aquilante, T. and G. Ottaviano (2012), "The triggers of competitiveness. The EFIGE cross-country report", Bruegel Blueprint Series, Volume XVII.

[3] Barro, R. and J. Lee (2010), "A New Data set of Educational Attainment in the World, 1950-2010", *NBER Working Paper* 15902.

[4] Bussiere, M., Ca' Zorzi, M., Chudik, A., and A. Dieppe (2010), "Methodological advances in the assessment of equilibrium exchange rates", *ECB working paper* 1151.

[5] Caballero, R., Farhi, E. and P.O. Gourinchas (2008), "An equilibrium model of global imbalances and low interest rates", *American Economic Review*, 98:1, 358-393.

[6] Calvo, G., Izquierdo, A. and L. Mejia (2008), "Systemic Sudden Stops: the Relevance of Balance-Sheet Effects and Financial Integration", *NBER Working Paper* No 14026 (2008).

[7] Chinn, M. and E. Prasad (2000), "Medium-term determinants of current accounts in industrial and developing countries: an empirical exploration", *NBER Working Paper* 7581.

[8] Chinn, M. and E. Prasad (2003), "Medium-term determinants of current accounts in industrial and developing countries: an empirical exploration", *Journal of International Economics*, 59, 47-56.

[9] Dieppe, A., Dees, S., Jacquinot, P., Karlsson, T., Osbat, C., Özyurt, S., Vetlov, I., Jochem, A., Bragoudakis, Z. , Sideris, D., Tello, P., Bricongne, J.C., Gaulier, Pisani, M., Papadopuolou, N., Micallef, B., Ajevskis, V., Brzoza-Brzezina, M., Gomes, S., Krekó, J., Vyskrabka, M. (2012), "Competitiveness anf external imbalances within the Euro Area", *ECB Occacional Paper* n.139.

[10] Estrada, A. (2009), "The mark-ups in the Spanish Economy: International Comparison and Recent Evolution", *Working Paper nº 0905, Banco de España.*

[11] Estrada, Á., Galí, J. and D. López-Salido (2013), "Patterns of convergence and divergence in the Euro area", *NBER working paper* 19561.

[12] Gruber, J. and S. Kamin (2007), "Explaining the Global Pattern of Current Account Imbalances," *Journal of International Money and Finance* 26, 500-522.

[13] Hall, R. (1988) "The Relation between Price and Marginal Cost in US Industry", *Journal of Political Economy*, No. 39.

[14] IMF (2012), "2012 Pilot External Sector Report", *IMF policy paper*, July 2, 2012.

[15] IMF (2013), "2013 Pilot External Sector Report", *IMF policy paper*, August 1, 2013.

[16] Kim, C. J. (2006), "Time-varying parameter Models with Endogenous Regressors", *Economic Letters* nº 91, pp 21-26.

[17] Lanau, S. and T. Wieladek (2012), "Financial regulation and current account adjustment", *IMF Working Paper* 12/98.

[18] Lee, J., Milesi-Ferretti, G.M., Ostry, J.D, Prati, A. and L. Ricci (2008), "Exchange Rate Assessments: CGER Methodologies", *IMF Occasional Paper* 261.

[19] Lommantzsch, K. (2011), "Diverging export performance of euro area member states: the role of price and non-price competitiveness", *mimeo*, Deutsche Bundesbank.

[20] Medina, L., Prat, J., and A. Thomas (2010), "Current Account Balance Estimates for Emerging Market Economies", *IMF Working Paper* WP/10/43.

[21] Mendoza, E., Quadrini, V. and J.V. Rios-Rull (2009), "Financial integration, financial deepness and global imbalances", *Journal of Political Economy*, 117(3).

[22] Schwab, K. (2012). "The Global Competitiveness Report 2012-2013", World Economic Forum.

A Data appendix

Most of our data are from the EBA Current Account database, publicly available at
http://www.imf.org/external/np/res/eba/data.htm.

Countries in the sample are Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Colombia, Costa Rica, Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Guatemala, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Russia, Singapore, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Tunisia, Turkey, United Kingdom, Uruguay, United States We refer the interested reader to a technical background note on the EBA methodology for additional details on the variables
(see http://www.imf.org/external/np/res/eba/).

VIX/VXO index. In 1986 the Chicago Board Option Exchange (CBOE) began to estimate and, from 1993, to publish, an index of financial market volatility known as VIX, based on the volatility of a series of options of the S&P 100. In 2003 the methodology for its calculation was modified, as the CBOE started using options to the S&P 500 to calculate the index. Still, the production of the "old" VIX, based on the S&P 100, continued, under the label VXO. This the the index that is included in the baseline EBA regression to proxy for changes in risk aversion, and the one we use to identify periods of global stress. We use the "old" VIX concept in order to avoid inconsistencies due to the methodological change.

Educational attainment data are from Barro and Lee (2010). The Barro and Lee (2010) cross-country data on educational attainment are based on census and survey information, as compiled by UNESCO, Eurostat and other sources. These figures report the distribution of educational attainment in the population over age 15 by sex and by 5-year age group. In Barro and Lee (2010) only population aged 25 and over and four levels of education are considered: (i) no formal education; (ii) primary; (iii) secondary; and (iv) tertiary. Missing observations are filled in by forward and backward extrapolation of the census/survey observations on attainment. The basic idea used is that the mean educational level of a given 25+ cohort remains constant over time under certain assumptions. Then attainment shares can be moved back and forth over time to t-5 and t+5. This procedure is adjusted by considering different mortality rates by education level for the 65+ cohorts. Barro and Lee (2010) provide two main measures of educational attainment: (a) the share of 25+ population that attained a given level of education [(i) to (iv)] as the highest; and (b) the average years of schooling of 25+ population. They also provide figures for the share of population which completed a given level of education. The variable included in the regressions ("tertiary education" in Table 2 and 3) is the share of 25+ population with tertiary education completed. Original data, which take the form of 5-years surveys, were interpolated using a spline function.

Country groupings used to compute benchmarks for structural competitiveness policies. As in Barro and Lee (2010), we divide countries according to their level of development and their geographical area, into:

Advanced economies: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Korea, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.

Latin America: Argentina, Brazil, Chile, Colombia, Costa Rica, Guatemala, Mexico, Peru, Uruguay.

East Asia: China, Indonesia, Malaysia, Philippines, Thailand.

East EU and Central Asia: Czech Republic, Hungary, Poland and Russia.

Others: Egypt, Morocco, Tunisia, India, Pakistan, Sri Lanka.

B Selecting competitiveness factors

In order to select the most promising competitiveness variables, a first glance was taken at the sectoral subindexes (pillars) included in the Global Competitiveness Index (GCI), compiled by the World Economic Forum. One interesting advantage of the GCI is that is constructed to define competitiveness beyond real exchange rate movements. The GCI is composed by twelve "pillars", all of which are widely accepted as being critical to economic growth. Using a combination of publicly available quantitative data and information provided in the Forum's Executive Opinion Survey (qualitative aspects), these pillars are brought together into the index. The index covers aspects such as the quality of the macroeconomic environment; the state of a country's public and private institutions; the increasing importance of technology in the development process; a country's technological readiness, the extent to which the country has a well-developed transport and communications infrastructure network; the quality of education as evaluated by the business community as well as staff's training as a proxy for workers' skills. More importantly, the index also covers goods, labour, and financial markets efficiency and development. These indexes can reach a value between 1 and 7, with 1 being the worst and 7 the best.

The main problem with the GCI is its reduced time coverage (2006-2012), which prevents their use in a complete econometric exercise of this type. However, it is still possible to check which pillars are more relevant (if any) in current account regressions when considered jointly with the EBA variables. The results of this exercise are summarised in Table 6.

Table 6. The Global competitiveness indicator and CA regression

Dependent variable: current account /GDP; estimation period: 2006-2010 (a)

	Parameter	Adj. R2
Baseline: IMF specification	-	0,8038
Pillar 5: Higher Education & Training	0.029***	0,8162
Pillar 6: Goods Market Efficiency	-0,002	0,8031
Pillar 7: Labor Market Efficiency	-0,004	0,8036
Pillar 8: Financial Development	-0.009**	0,8067
Pillar 9: Technological Readiness	0.012***	0,8073
Pillar 12: Innovation	0.015**	0,8078

GLS estimates with panel heteroskedasticity corrected standard errors.

* significant at 10%; ** significant at 5%; *** significant at 1%

(a) All countries considered by IMF except Tunisia (not included in the GCI database)

C TFP estimation

Data used as a proxy for total factor productivity (TFP) were obtained as in Estrada (2009). They are estimates based on the Solow residual –the difference between output growth and a weighted average of the growth rates of labour and capital, being the weights the income participation of those inputs in the production-. As shown in the seminal paper by Hall (1988), under the assumption of imperfect competition in product markets, the Solow residual captures not only changes in TFP but also in the capital stock and mark-ups. Therefore, to obtain a proxy for TFP some previous knowledge on mark-ups is needed. The approach followed is the same as in Estrada (2009), which obtains estimates of mark-ups for several countries and economic sectors under the assumption they can change over time. By applying Kalman filter techniques and a two-step approach, similar to Kim (2006), we deal with the time-varying nature of mark-ups and the need of using instruments to appropriately estimate changes in total factor productivity through the Solow residual. Production data are form the EBA database and labour data from the World Bank database. Capital stock data were obtained by adding cumulated investment to initial capital conditions provided by United Nations Industrial Development Organisation.[24]

[24] See http://www.unido.org/data1/wpd/Index.cfm.

D Tables and figures

Table 3-a: Safe countries, crisis periods and non-price competitiveness

Dependent variable: current account /GDP; estimation period: 1986-2010; z-statistics in brackets

	EBA	Extended specification
L.Net foreign assets	0,04	0,03
	[5.14]***	[5.00]***
NFA high debt	-0,03	-0,03
	[2.25]**	[2.41]**
Financial Center Dummy	0,04	0,04
	[4.63]***	[5.61]***
Relative GDP	0,04	0,04
	[2.85]***	[2.91]***
Oil Trade Balance/GDP (if > 10%)	0,53	0,51
	[5.92]***	[5.26]***
Dependency Ratio	-0,03	0,007
	[0.75]	[0.17]
Population Growth	-0,39	-0,57
	[0.91]	[1.51]
Aging Speed	0,13	0,03
	[3.43]***	[0.43]
Aging Speed*safe		0,18
		[2.63]**
5-year GDP growth forecast	-0,4	-0,79
	[4.32]***	[5.68]***
5-year GDP growth forecast*safe		0,44
		[2.10]**
L.Public Health Spending/GDP	-0,68	-1,04
	[4.36]***	[5.85]***
L.Public Health Spending/GDP*safe		0,66
		[2.37]**
L.VOX*(1-Kcon)	0,06	0,06
	[3.65]***	[4.00]***
L.VOX*(1-Kcon)*(currency's share in world reserves stock)	-0,16	-0,17
	[2.67]***	[2.80]***
Own currency's share in world reserves	0,003	-0,17
	[0.18]	[4.04]***
Own currency's share in world reserves*safe		0,19
		[4.52]***

.../...

GLS estimates with panel heteroskedasticity corrected standard errors.

* significant at 10%; ** significant at 5%; *** significant at 1%

safe and crisis are dummies

"L" stands for one-year lag of the respective variable.

"D" denotes first differences of the respective variable.

Table 3-b: Safe countries, crisis periods and non-price competitiveness

Dependent variable: current account /GDP; estimation period: 1986-2010; z-statistics in brackets

	EBA	Extended specification
.../...		
Output Gap	-0,40	-0,31
	[10.93]***	[7.67]***
Output Gap*crisis		-0,27
		[5.26]***
Output Gap*crisis*safe		0,37
		[4.81]***
Terms-of-Trade gap*Openness	0,25	0,14
	[5.51]***	[2.35]**
Terms-of-Trade gap*Openness*crisis		0,18
		[1.95]*
Terms-of-Trade gap*Openness*crisis*safe		-0,27
		[2.38]**
Cyclically Adjusted Fiscal Balance (inst.)	0,40	0,44
	[3.66]***	[4.11]***
Cyclically Adjusted Fiscal Balance (inst.)*crisis		-0,19
		[2.04]**
Cyclically Adjusted Fiscal Balance (inst.)*crisis*safe		0,24
		[1.89]*
Capital Control Index ("Kcon")	0,03	0,03
	[3.31]***	[3.35]***
Kcon*(Changes in Reserves)/GDP, instrumented	0,4	0,56
	[2.22]**	[3.10]***
D TFP		0,002
		[0.94]
D TFP*safe		0,02
		[2.82]***
D tertiary education		0,01
		[3.18]***
Sweden dummy		0,05
		[5.25]***
Malaysia dummy	0,06	0,06
	[2.37]**	[3.02]***
Constant	0,003	-0,003
	[0.47]	[0.51]
Observations	1099	1072
Number of countries	50	50
Adjusted R-Squared	0,60	0,65

GLS estimates with panel heteroskedasticity corrected standard errors.

* significant at 10%; ** significant at 5%; *** significant at 1%

safe and crisis are dummies

"L" stands for one-year lag of the respective variable.

"D" denotes first differences of the respective variable.

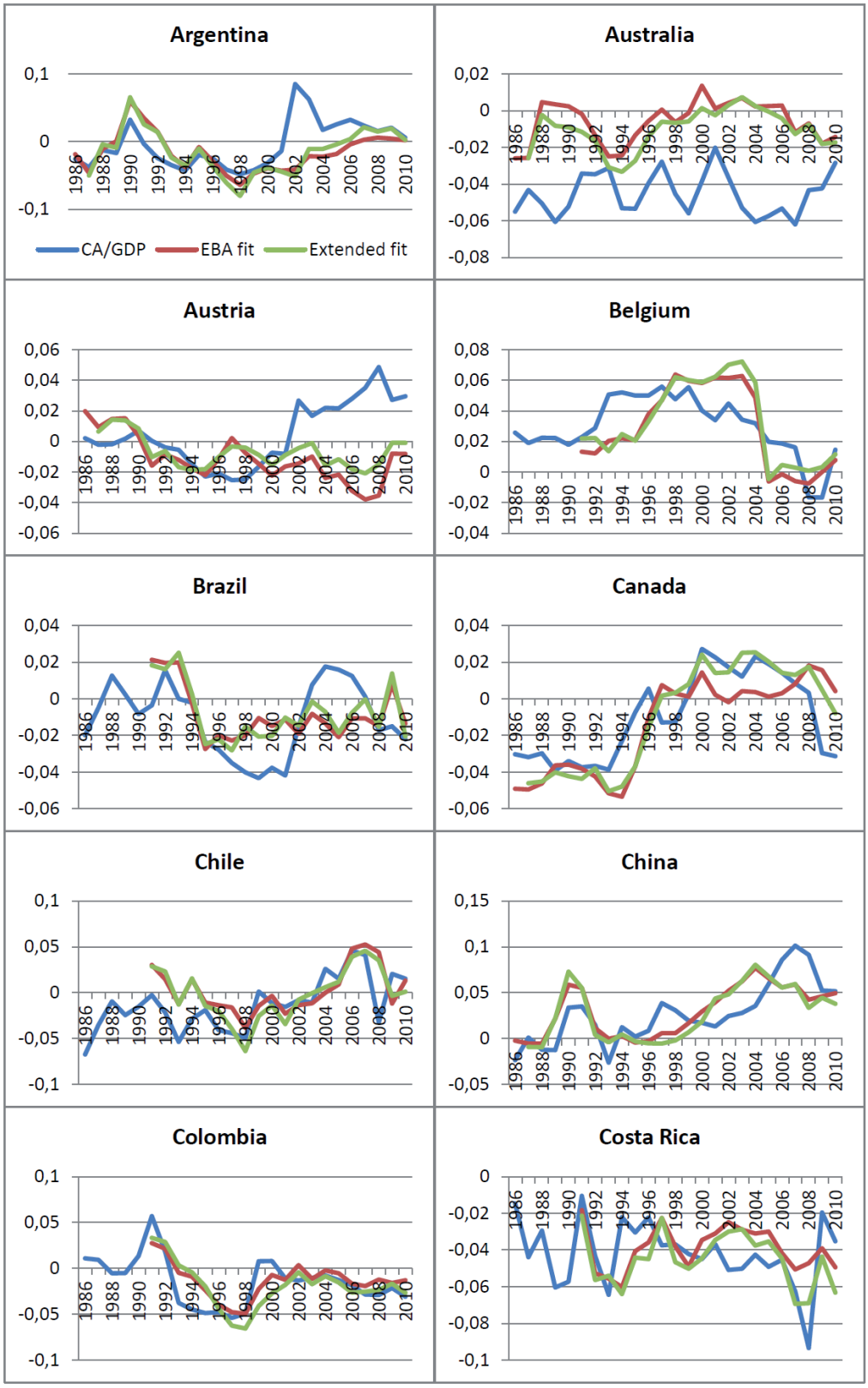


FIGURE 7a – Observed CA/GDP ratio, EBA fit and extended regression fit.

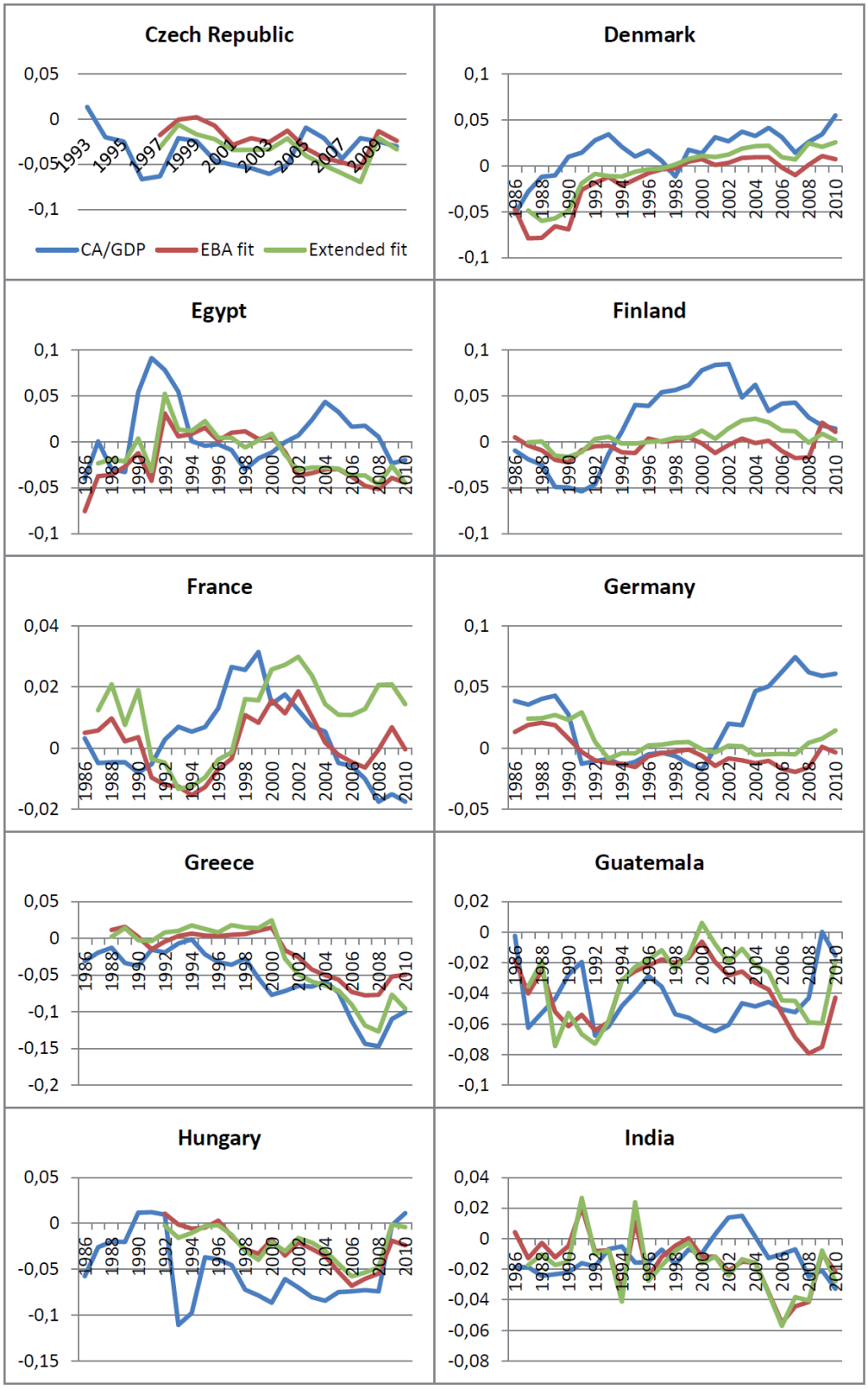


FIGURE 7b – Observed CA/GDP ratio, EBA fit and extended regression fit.

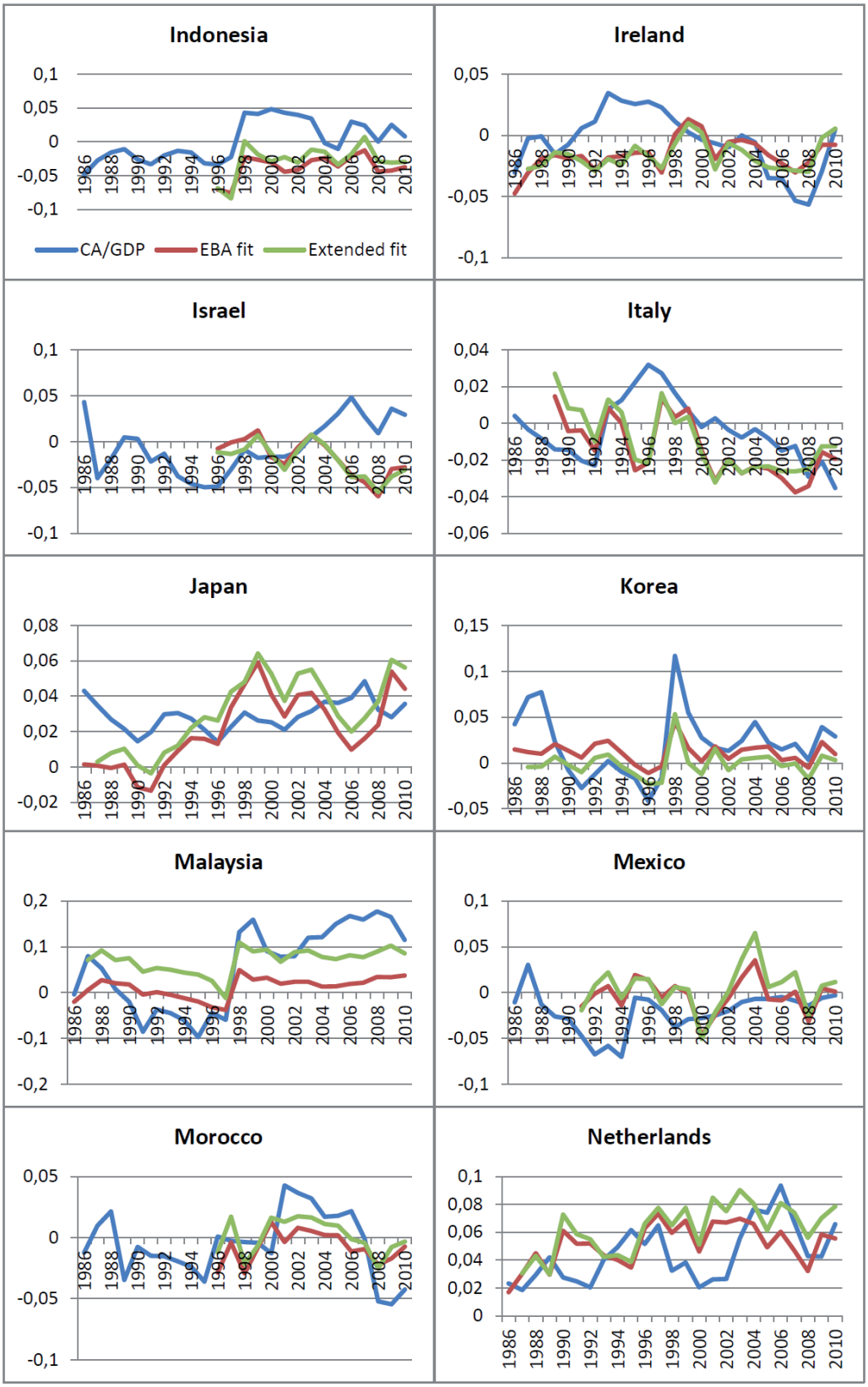


FIGURE 7c – Observed CA/GDP ratio, EBA fit and extended regression fit.

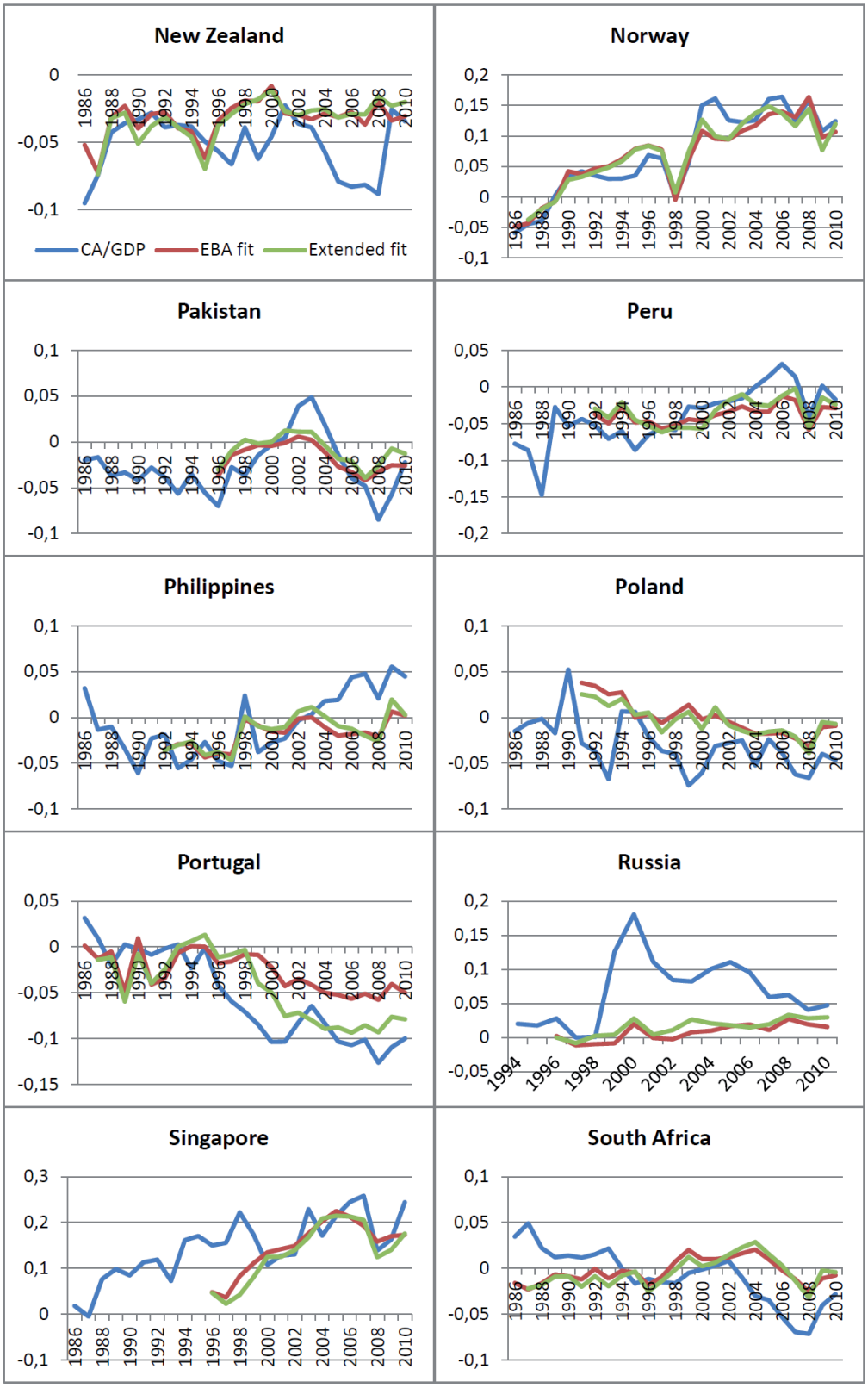


FIGURE 7d – Observed CA/GDP ratio, EBA fit and extended regression fit.

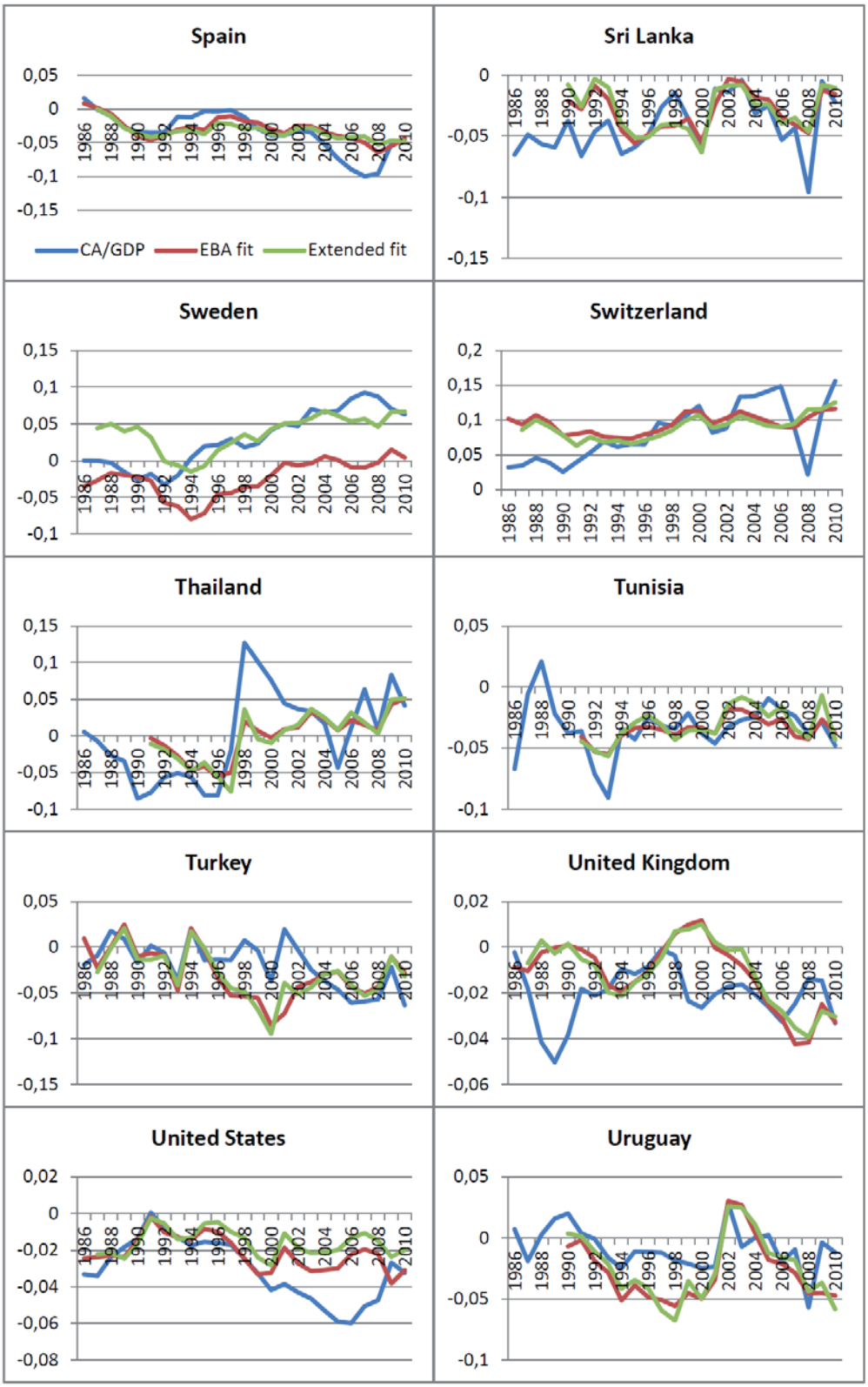


FIGURE 7e – Observed CA/GDP ratio, EBA fit and extended regression fit.

Table 4: Policy current account misalignments decomposition

country	CA/GDP	policy CA mis		residual		fiscal gap		health gap		kcontrols gap		reserves gap	
		EBA	ext	EBA	ext	EBA	ext	EBA	ext	EBA	ext	EBA	ext
Australia	-2,2%	-1,0%	-0,5%	-1,1%	0,1%	-0,5%	-0,6%	1,0%	0,6%	-0,3%	-0,3%	-0,2%	-0,3%
Belgium	-0,1%	-1,8%	-1,9%	-1,0%	-1,0%	-0,1%	-0,2%	-0,2%	-0,1%	-0,3%	-0,3%	-0,2%	-0,3%
Brazil	-2,1%	0,1%	0,3%	-1,2%	-0,5%	1,2%	0,8%	-0,2%	-0,3%	0,1%	0,0%	0,2%	0,3%
Canada	-2,8%	-4,1%	-2,8%	-2,9%	-2,0%	0,2%	0,2%	-0,9%	-0,5%	-0,3%	-0,3%	-0,2%	-0,3%
China	2,8%	2,9%	5,2%	-1,4%	0,4%	1,1%	0,7%	1,2%	1,9%	0,7%	0,6%	1,2%	1,7%
France	-2,2%	-0,9%	-1,9%	0,9%	-0,6%	0,0%	-0,1%	-1,2%	-0,7%	-0,3%	-0,3%	-0,2%	-0,3%
Germany	5,7%	5,6%	3,5%	5,7%	3,2%	1,0%	1,2%	-0,6%	-0,3%	-0,3%	-0,3%	-0,2%	-0,3%
India	-2,8%	3,4%	3,4%	3,3%	3,3%	0,0%	0,0%	0,1%	0,2%	0,3%	0,2%	-0,2%	-0,3%
Indonesia	0,2%	2,4%	2,5%	0,6%	1,0%	1,2%	0,8%	0,4%	0,7%	0,1%	0,0%	0,1%	0,1%
Italy	-3,2%	-0,9%	-2,0%	-1,0%	-2,1%	0,4%	0,6%	0,2%	0,1%	-0,3%	-0,3%	-0,2%	-0,3%
Japan	2,0%	0,0%	-1,0%	0,8%	0,7%	-1,4%	-1,8%	1,1%	0,6%	-0,3%	-0,3%	-0,2%	-0,3%
Korea	2,4%	1,3%	4,3%	-0,6%	2,3%	1,2%	0,8%	1,2%	1,9%	-0,3%	-0,3%	-0,2%	-0,3%
Malaysia	11,5%	11,5%	12,0%	8,9%	8,5%	0,1%	0,0%	1,1%	1,6%	0,3%	0,2%	1,2%	1,6%
Mexico	-0,8%	0,9%	0,4%	-0,8%	-1,3%	0,9%	0,6%	0,8%	1,2%	0,1%	0,0%	0,0%	0,0%
Netherlands	7,5%	3,2%	2,0%	4,1%	2,5%	0,5%	0,6%	-0,9%	-0,5%	-0,3%	-0,3%	-0,2%	-0,3%
Poland	-4,3%	-0,6%	-0,8%	-0,6%	-1,0%	-0,1%	-0,1%	0,4%	0,7%	-0,2%	-0,2%	-0,2%	-0,2%
Russia	5,5%	-0,9%	-0,5%	-0,6%	-0,9%	-0,7%	-0,4%	0,9%	1,3%	-0,3%	-0,3%	-0,2%	-0,2%
South Africa	-3,3%	-2,2%	-3,0%	-2,1%	-2,6%	0,2%	0,1%	-0,4%	-0,7%	0,3%	0,2%	0,0%	0,0%
Spain	-3,7%	-0,9%	-1,5%	1,1%	0,9%	-1,5%	-1,8%	0,0%	0,0%	-0,3%	-0,3%	-0,2%	-0,3%
Sweden	6,7%	9,4%	9,5%	9,0%	8,8%	1,1%	1,3%	-0,2%	-0,1%	-0,3%	-0,3%	-0,2%	-0,3%
Switzerland	14,0%	4,7%	3,7%	3,5%	2,5%	1,2%	1,5%	0,5%	0,3%	-0,3%	-0,3%	-0,2%	-0,3%
Thailand	3,4%	3,6%	3,5%	1,9%	2,4%	1,4%	0,9%	0,2%	0,3%	0,3%	0,2%	-0,2%	-0,3%
Turkey	-9,9%	-5,8%	-5,1%	-5,0%	-3,5%	0,6%	0,4%	-0,9%	-1,3%	-0,3%	-0,3%	-0,2%	-0,3%
United Kingdom	-1,9%	-0,8%	-0,7%	1,2%	1,3%	-0,9%	-1,2%	-0,5%	-0,3%	-0,3%	-0,3%	-0,2%	-0,3%
United States	-3,1%	-1,8%	-2,8%	0,0%	-1,1%	-0,6%	-0,8%	-0,7%	-0,4%	-0,3%	-0,3%	-0,2%	-0,3%

"ext" denotes estimates performed through the extended specification presented in Table 3.

Table 5: Structural norms and misalignments

country	CA/GDP	Structural norm	Structural mis	TFP	Education
Australia	-2,2%	-4,6%	2,3%	1,2%	1,2%
Belgium	-0,1%	-2,5%	2,3%	1,2%	1,2%
Brazil	-2,1%	-0,9%	-1,1%	0,0%	-1,1%
Canada	-2,8%	-4,0%	1,2%	1,2%	0,0%
China	2,8%	4,1%	-1,3%	0,0%	-1,3%
France	-2,2%	-1,8%	-0,3%	1,2%	-1,5%
Germany	5,7%	6,4%	-0,6%	-0,2%	-0,4%
India	-2,8%	-2,2%	-0,6%	-0,1%	-0,4%
Indonesia	0,2%	3,3%	-2,8%	-0,1%	-2,8%
Italy	-3,2%	0,6%	-3,5%	0,3%	-3,8%
Japan	2,0%	3,5%	-1,5%	-2,7%	1,2%
Korea	2,4%	1,5%	0,8%	-0,3%	1,2%
Malaysia	11,5%	12,3%	-0,8%	0,1%	-0,9%
Mexico	-0,8%	-2,2%	1,3%	0,1%	1,2%
Netherlands	7,5%	5,2%	2,2%	1,2%	1,1%
Poland	-4,3%	-3,8%	-0,5%	0,1%	-0,6%
Russia	5,5%	4,2%	1,2%	0,0%	1,2%
South Africa	-3,3%	-0,4%	-2,6%	-0,3%	-2,2%
Spain	-3,7%	-4,5%	0,7%	-0,4%	1,2%
Sweden	6,7%	4,3%	2,3%	1,2%	1,2%
Switzerland	14,0%	13,8%	0,2%	0,6%	-0,4%
Thailand	3,4%	2,1%	1,2%	0,0%	1,2%
Turkey	-9,9%	-4,9%	-4,6%	-0,5%	-4,0%
United Kingdom	-1,9%	-4,2%	2,2%	1,2%	1,0%
United States	-3,1%	-5,6%	2,3%	1,2%	1,2%

BANCO DE ESPAÑA PUBLICATIONS

WORKING PAPERS

1220 ENRIQUE ALBEROLA, LUIS MOLINA and PEDRO DEL RÍO: Boom-bust cycles, imbalances and discipline in Europe.
1221 CARLOS GONZÁLEZ-AGUADO and ENRIQUE MORAL-BENITO: Determinants of corporate default: a BMA approach.
1222 GALO NUÑO and CARLOS THOMAS: Bank leverage cycles.
1223 YUNUS AKSOY and HENRIQUE S. BASSO: Liquidity, term spreads and monetary policy.
1224 FRANCISCO DE CASTRO and DANIEL GARROTE: The effects of fiscal shocks on the exchange rate in the EMU and differences with the US.
1225 STÉPHANE BONHOMME and LAURA HOSPIDO: The cycle of earnings inequality: evidence from Spanish social security data.
1226 CARMEN BROTO: The effectiveness of forex interventions in four Latin American countries.
1227 LORENZO RICCI and DAVID VEREDAS: TailCoR.
1228 YVES DOMINICY, SIEGFRIED HÖRMANN, HIROAKI OGATA and DAVID VEREDAS: Marginal quantiles for stationary processes.
1229 MATTEO BARIGOZZI, ROXANA HALBLEIB and DAVID VEREDAS: Which model to match?
1230 MATTEO LUCIANI and DAVID VEREDAS: A model for vast panels of volatilities.
1231 AITOR ERCE: Does the IMF's official support affect sovereign bond maturities?
1232 JAVIER MENCÍA and ENRIQUE SENTANA: Valuation of VIX derivatives.
1233 ROSSANA MEROLA and JAVIER J. PÉREZ: Fiscal forecast errors: governments vs independent agencies?
1234 MIGUEL GARCÍA-POSADA and JUAN S. MORA-SANGUINETTI: Why do Spanish firms rarely use the bankruptcy system? The role of the mortgage institution.
1235 MAXIMO CAMACHO, YULIYA LOVCHA and GABRIEL PEREZ-QUIROS: Can we use seasonally adjusted indicators in dynamic factor models?
1236 JENS HAGENDORFF, MARÍA J. NIETO and LARRY D. WALL: The safety and soundness effects of bank M&As in the EU: Does prudential regulation have any impact?
1237 SOFÍA GALÁN and SERGIO PUENTE: Minimum wages: do they really hurt young people?
1238 CRISTIANO CANTORE, FILIPPO FERRONI and MIGUEL A. LEÓN-LEDESMA: The dynamics of hours worked and technology.
1239 ALFREDO MARTÍN-OLIVER, SONIA RUANO and VICENTE SALAS-FUMÁS: Why did high productivity growth of banks precede the financial crisis?
1240 MARIA DOLORES GADEA RIVAS and GABRIEL PEREZ-QUIROS: The failure to predict the Great Recession. The failure of academic economics? A view focusing on the role of credit.
1241 MATTEO CICCARELLI, EVA ORTEGA and MARIA TERESA VALDERRAMA: Heterogeneity and cross-country spillovers in macroeconomic-financial linkages.
1242 GIANCARLO CORSETTI, LUCA DEDOLA and FRANCESCA VIANI: Traded and nontraded goods prices, and international risk sharing: an empirical investigation.
1243 ENRIQUE MORAL-BENITO: Growth empirics in panel data under model uncertainty and weak exogeneity.
1301 JAMES COSTAIN and ANTON NAKOV: Logit price dynamics.
1302 MIGUEL GARCÍA-POSADA: Insolvency institutions and efficiency: the Spanish case.
1303 MIGUEL GARCÍA-POSADA and JUAN S. MORA-SANGUINETTI: Firm size and judicial efficacy: evidence for the new civil procedures in Spain.
1304 MAXIMO CAMACHO and GABRIEL PEREZ-QUIROS: Commodity prices and the business cycle in Latin America: living and dying by commodities?
1305 CARLOS PÉREZ MONTES: Estimation of regulatory credit risk models.
1306 FERNANDO LÓPEZ VICENTE: The effect of foreclosure regulation: evidence for the US mortgage market at state level.
1307 ENRIQUE MORAL-BENITO and LUIS SERVEN: Testing weak exogeneity in cointegrated panels.
1308 EMMA BERENGUER, RICARDO GIMENO and JUAN M. NAVE: Term structure estimation, liquidity-induced heteroskedasticity and the price of liquidity risk.
1309 PABLO HERNÁNDEZ DE COS and ENRIQUE MORAL-BENITO: Fiscal multipliers in turbulent times: the case of Spain.

1310 SAMUEL HURTADO: DSGE models and the Lucas critique.

1311 HENRIQUE S. BASSO and JAMES COSTAIN: Fiscal delegation in a monetary union with decentralized public spending.

1312 MAITE BLÁZQUEZ CUESTA and SANTIAGO BUDRÍA: Does income deprivation affect people's mental well-being?

1313 ENRIQUE ALBEROLA, ÁNGEL ESTRADA and DANIEL SANTABÁRBARA: Growth beyond imbalances. Sustainable growth rates and output gap reassessment.

1314 CARMEN BROTO and GABRIEL PEREZ-QUIROS: Disentangling contagion among sovereign CDS spreads during the European debt crisis.

1315 MIGUEL GARCÍA-POSADA and JUAN S. MORA-SANGUINETTI: Are there alternatives to bankruptcy? A study of small business distress in Spain.

1316 ROBERTO RAMOS and ENRIQUE MORAL-BENITO: Agglomeration matters for trade.

1317 LAURA HOSPIDO and GEMA ZAMARRO: Retirement patterns of couples in Europe.

1318 MAXIMO CAMACHO, GABRIEL PEREZ-QUIROS and PILAR PONCELA: Short-term forecasting for empirical economists. A survey of the recently proposed algorithms.

1319 CARLOS PÉREZ MONTES: The impact of interbank and public debt markets on the competition for bank deposits.

1320 OLYMPIA BOVER, JOSE MARIA CASADO, SONIA COSTA, PHILIP DU CAJU, YVONNE MCCARTHY, EVA SIERMINSKA, PANAGIOTA TZAMOURANI, ERNESTO VILLANUEVA and TIBOR ZAVADIL: The distribution of debt across euro area countries: the role of Individual characteristics, institutions and credit conditions.

1321 BRINDUSA ANGHEL, SARA DE LA RICA and AITOR LACUESTA: Employment polarisation in Spain over the course of the 1997-2012 cycle.

1322 RODOLFO G. CAMPOS and ILIANA REGGIO: Measurement error in imputation procedures.

1323 PABLO BURRIEL and MARÍA ISABEL GARCÍA-BELMONTE: Meeting our D€STINY. A Disaggregated €uro area Short Term INdicator model to forecast GDP (Y) growth.

1401 TERESA SASTRE and FRANCESCA VIANI: Countries' safety and competitiveness, and the estimation of current account misalignments.

BANCO DE **ESPAÑA**
Eurosistema

Unidad de Servicios Auxiliares
Alcalá, 48 - 28014 Madrid
E-mail: publicaciones@bde.es
www.bde.es