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Twin deficits through the looking glass: time-varying analysis in the Euro area

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Abstract

Using two measures of the fiscal position, the cyclically adjusted primary budget balance (CAPB) and the total budget balance, we assess the Twin Deficit Hypothesis for the Euro Area in the period 1995–2020. Furthermore, we estimate time-varying coefficients of the current account balance responses to changes in the CAPB and in the government balance and we identify the determinants of these responses. The CAPB and the government balance, in addition to being determinants of the current account balance, are also determinants of the time-varying responses of the current account balance. The government balance, current account balance and public debt, and the temporal period also influence these responses.

Keywords CAPB · Government balance · Current account balance · Time-varying coefficients · Eurozone · Panel data

JEL Classification F32 · F41 · H62 · C33

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1 Introduction

Between 1995 and 2010, the Eurozone accumulated current account imbalances and the respective position of individual economies diverged. Chen et al. (2013), for example, highlight several factors that explain the external imbalances in the Eurozone. While the Netherlands and Germany registered significant external surpluses, Portugal and Greece had substantial external deficits, with values outside the range defined in the Excessive Macroeconomic Imbalances Procedure (MIP) from European Commission, i. e., between −4 and 6% of GDP for the current account balance. In this regard, Carrasco (2018) concludes that countries such as Belgium, Germany, Luxembourg, and the Netherlands have structural external surpluses, whereas Greece, Portugal and Spain have structural external deficits. Afonso and Jalles (2018) report a negative effect of the Global Financial Crisis on the cyclical component of the current account balance for Italy, Ireland, Portugal, Spain, and Latvia.

As of 2010, with the sovereign debt crisis in Greece and the subsequent contagion to other peripheral economies (see Lane 2012), the external imbalances verified in some Eurozone countries faded, especially in deficit countries. Some countries also exhibited chronic and persistent budget deficits, above 3% of GDP, as stipulated in the Stability and Growth Pact (SGP). In addition, public debt rose to high values in some countries, in parallel with external debt, occurring twin debts, and not just twin deficits.

In fact, there are several articles that study the relationship between the budget balance and the current account balance applied to the European Union and the Eurozone (see, for instance, Forte and Magazzino 2013, 2015; Vamvoukas and Spilioti 2015; Brissimis et al. 2013; and Gehringer 2015). However, the cyclically adjusted primary government balance (CAPB) is not used as a fiscal variable, only the budget balance is used. The CAPB is assumed as an adequate measure, since, on the one hand, it provides information about the structural component of the primary budget balance, and, on the one hand, it is corrected for cyclical fluctuations in output. This is particularly relevant in the context of investigating the relationship between the budget balance and the current account balance, considering that both balances are influenced by cyclical fluctuations in output. This is one of the innovative elements of this work. The other innovative element is related to the exploration of potential explanatory factors of the time-varying responses of the current account balance vis-à-vis changes in the CAPB and the budget balance. In this analysis, we assume that, to some extent, responses vary within and across countries.

The paper is structured as follows. Section 2 provides a literature review, both theoretical and empirical. Section 3 presents the methodology. Section 4 reports the empirical analysis. Section 5 concludes.

2 Literature

In this section, we present the main explanatory perspectives on the relationship between the government balance and the current account balance, as well as empirical evidence on the relationship between both (im)balances.

2.1 Explanatory perspectives

The literature advances five perspectives to explain the relationship between the government deficit and the external deficit, namely: (i) the Twin Deficit Hypothesis (TDH); (ii) the Ricardian Equivalence Hypothesis (REH); (iii) the Current Account Targeting Hypothesis (CATH); (iv) the feedback linkage; and (v) the Twin Divergence Hypothesis.

The TDH states that the fiscal deficit tends to result in a current account deficit. This relationship can be explained in the framework of two perspectives: the Mundell-Fleming Model (Mundell 1960; Fleming 1962) and the Keynesian Absorption Theory. From the first perspective, in an economy with a flexible exchange regime, the growth of fiscal deficit leads to higher domestic real interest rates, which in turn attracts foreign capital flows and results in an appreciation of exchange rates. A stronger national currency reduces net exports and translates into a loss of the economy's external competitiveness, which in turn creates a current account deficit. In a fixed exchange rate regime, an increase in fiscal deficit results in an increase in income and prices, which consequently leads to a real appreciation of the currency, which it turns negatively affects the current account balance. The second perspective suggests that an increasing fiscal deficit can translate in upward pressure on domestic absorption, which results in increased domestic spending, and thus contributes to increased imports, which in turn leads to a deterioration in the current account balance.

According to the REH (Barro 1974; 1989), the fiscal deficit and the external deficit are unrelated, as fiscal changes induce an intertemporal reallocation of savings (with intertemporal substitution between taxes and government deficits), whereas the intertemporal fiscal constraints of private agents, the real interest rate, investment, and the current account balance all remain unchanged. Therefore, fiscal deficits do not result in changes in interest and exchange rates and the effects on the current account are null, and there is no relationship between the budget deficit and the external deficit.

An inverse relationship could also exist which moves in the direction of the current account deficit to the government deficit. The underlying idea is that the external position of an economy can deteriorates because of factors that are exogenous to its fiscal position. In this scenario, a government deficit can respond to this deterioration and adjust to stabilise the economy. Adjustment can be made by using automatic stabilisers and/or discretionary fiscal policies. Summers (1988) referred to this inverse relationship as "Current Account Targeting". In this context, there is an inverse and positive relationship current account balance/government balance.

Feldstein and Horioka (1980) point that savings and investment are highly correlated and thus this linkage translates into bi-directional relationship between the fiscal balance and the current account balance, with variables moving together. As the relationship between variables occurs in both directions, this result may support both the TDH and the CATH.

More recently, Kim and Roubini (2008) assess the topic of the existence of endogenous movements of the fiscal deficit and the current account deficit. They suggest that "twin divergence" is also likely, i.e., the current account deficit can improve when the government deficit worsens. This result is attributed to two

factors, induced by an increase of the real interest rate, resulting from an expansionary fiscal policy, namely, a partial Ricardian movement of private savings and a crowding out effect on investment.

2.2 Empirical evidence

In recent decades, many empirical articles have been published on the relationship between the government balance and the current account balance. In particular, there is some empirical literature applied to Eurozone or European Union countries, namely Forte and Magazzino (2013, 2015), Vamvoukas and Spilioti (2015), among others. The contributions of Brissimis et al. (2013) and Gehringer (2015), in turn, identify the determinants of the current account (im)balance(s) for these groups of countries. The articles differ with regard to samples, periods and methodological aspects, as well as the results obtained. More specifically, depending on the studies, there are different results in terms of significance, sign, and direction between the government balance and the current account balance. Moreover, the diversity of empirical results reflects the different explanatory perspectives on the relationship between both balances.

The majority of the empirical studies that test the relationship between the government balance and the current account balance use time series techniques with data from several countries or a particular country, namely causality and cointegration tests, error correction models, Vector Auto-Regressive (VAR) analysis and Autoregressive Distributed Lag (ARDL) models (see, for instance, Abell 1990; Fidrmuc 2003; Daly and Siddiki 2009; McFarlane et al. 2020; and Janko 2020). A smaller number of articles have employed panel data estimation methods, such as Forte and Magazzino (2013, 2015), Vamvoukas and Spilioti (2015), Badinger et al. (2017) and Afonso et al. (2022).

More specifically, Forte and Magazzino (2013), for a sample consisting of 33 European countries between 1970 and 2010, conclude that robust and chronic government deficits generate current account deficits. The sample is divided into two sub-periods: 1970–1991 (pre-Maastricht Treaty) and 1992–2010 (post-Maastricht Treaty). In the first sub-sample, past and current budget balances influence the current account balance, while in the second sub-sample, past budget balance values affect the current account balance in more recent years. Finally, for countries with high budget deficits, a long-term relationship is found between both balances.

In Forte and Magazzino (2015), the same authors test both the TDH and REH for Eurozone countries between 1970 and 2010, obtaining mixed results, that is, the results reported constitute supporting evidence for both hypotheses. In the pre-Maastricht Treaty period, the REH is verified, and the TDH is corroborated for the post-Maastricht Treaty period.

Vamvoukas and Spilioti (2015) assess the effect of the government balance on the current account balance for 12 Eurozone countries between 1970 and 2008. The article states that the government balance plays an important role in determining the current account balance and that the effect is stronger in the post-Maastricht Treaty

period than in the pre-Maastricht Treaty period, a result partially found by Forte and Magazzino (2015).

There is also recent literature that investigates the importance of fiscal rules in the relationship between the fiscal balance and the current account balance. For example, Badinger et al. (2017) finds support for the TDH. Regarding the role of fiscal rules, it is not concluded that they have direct effects on the current account balance. However, the terms of interaction between the fiscal balance and the fiscal rules indices are negative, which suggests the attenuation of the effect of the fiscal balance on the current balance in the presence of fiscal rules. Afonso et al. (2022), in turn, confirm the TDH and conclude that the effect of the fiscal balance on the current account balance is amplified when considering fiscal rules (with the exception of revenues rules and debt rules). Furthermore, the authors conclude that robust fiscal institutions improve the current account balance.

Additionally, we find empirical literature that investigates the determinants of the current account balance, and the government balance is listed as one of the macroeconomic determinants of the current account balance. Chinn and Prasad (2003), Cheung et al. (2013) and Altayligil and Çetrez (2020) assert that the government balance is an explanatory factor for the current account balance, together with other explanatory factors, for large country panels. Carrasco (2018) investigates the factors that determine the structural component of the current account balance for 12 Eurozone countries between 1960 and 2014. The public account balance appears as one of the main explanatory variables of the structural component of the current account balance, such as in Cheung et al. (2013). Considering a panel of 25 OECD countries, Barnes et al. (2010) conclude that the budget balance is one of the explanatory factors for the current account balance. Brissimis et al. (2013), using two samples: the first, made up of the 12 initial member countries of the European Union, and the second, made up of 17 European Union countries, find evidence that private sector developments were more relevant to current account balance developments than public sector developments between 1980 and 2008. On the other hand, Gehringer (2015) confirms the validity of the TDH for European Union countries between 1995 and 2010.

3 Methodology

The government balance has two components: cyclical and structural. The cyclical component reacts to the conditions of the economic cycle and is outside the direct and immediate control of economic policy makers (endogenous component). The structural component corresponds to the government balance remaining after considering the effects of economic cycles and reflects the fiscal policy stance chosen by the authorities (exogenous component). Consequently, while the government balance considers automatic stabilizers, the cyclically adjusted primary government balance purges this cyclical component of the government balance and allows for the measurement of discretionary fiscal policy options.

In the first step of our empirical strategy, we investigate the effects of the CAPB and the government balance on the current account balance. Hence, we consider that

public saving is one of the explanatory factors for the developments in the current account balance in the Eurozone as a whole, together with other explanatory factors.

In the standard empirical literature on the relationship between the government balance and the current account balance, it is commonly assumed that the responses of the current account balance to the budget balance are constant over time and for the sample as a whole. However, external account balance responses may not be constant over time, both within and across countries, at least to some extent.

Therefore, in the second step of our empirical strategy, we compute time-varying coefficients of the responses of the current account balance to changes in the CAPB and in the government balance, and then we identify the explanatory factors of these responses. This framework and analysis constitute the main added value of the article, and, to the best of our knowledge, this is the first investigation to do so.

Since there might be heteroskedasticity, auto-correlation, and cross-section dependence issues, we chose to use the FE (Fixed Effects) method with Driscoll-Kraay (1998) robust standard errors in order to determine the effect and significance of the CAPB and the general government balance on the current account balance. Hence, FE estimations enable us to capture relevant time-invariant unobservable country-specific characteristics for the determination of the current account balance, and they constitute the first step in our empirical analysis.

The baseline panel specifications are as follows:

$$\begin{aligned} CA_{it} &= \alpha_0 + \alpha_1 PB_{it} + \alpha_2 ER_{it} + \alpha_3 GDP_{it} + \alpha_4 IR_{it} + \alpha_5 TO_{it} + \alpha_6 YD_{it} \\ &+ OD_{it} + \alpha_8 CRED_{it} + \alpha_9 INF_{it} + \alpha_{10} GOV_{it} + \alpha_{11} FR_{it} + \theta_i + \Omega_t + \mu_{it} \end{aligned} \tag{1}$$

$$\begin{aligned} CA_{it} &= \beta_0 + \beta_1 GB_{it} + \beta_2 ER_{it} + \beta_3 GDP_{it} + \beta_4 IR_{it} + \beta_5 TO_{it} + \beta_6 YD_{it} \\ &+ OD_{it} + \beta_8 CRED_{it} + \beta_9 INF_{it} + \beta_{10} GOV_{it} + \beta_{11} FR_{it} + \delta_i + \rho_t + \varphi_{it} \end{aligned} \tag{2}$$

where CA_{it} is the current account balance-to-GDP ratio of country i ($i = 1, \ldots, n$) in year t ($t = 1, \ldots, T$); PB_{it} is the cyclically adjusted primary government balance-to-GDP ratio of country i in year t; GB_{it} is the general government balance-to-GDP ratio of country i in year t; ER_{it} is the real effective exchange rate of country i in year t; GDP_{it} is the real GDP growth rate per capita of country i in year t; IR_{it} is the long-run real interest rate of country i in year t; TO_{it} is the trade openness of country i in year t; YD_{it} is the youth dependency ratio of country i in year t; OD_{it} is the old-age dependency ratio of country i in year t; $CRED_{it}$ is the share of private sector credit flow consolidated as a percentage of GDP of country i in year t; INF_{it} is the inflation rate of country i in year t; GOV_{it} is the government effectiveness index of country i in year t; FR_{it} is the fiscal rules index of country i in year t;θ_i and δ_i are the cross-section fixed effects; Ω_t and ρ_t are the period fixed effects; μ_{it} and φ_{it} are the random disturbance terms of country i in year t.

In the second step, we estimate the marginal responses of the current account balance to unit changes in the CAPB and the government balance, using the methodology proposed by Schlicht (2003), by introducing the assumption that the regression coefficients may vary over time. Consequently, we estimate the following regressions for each country i of the sample:

$$CA_{it} = \alpha_0 + \alpha_1 PB_{it} + \omega_{it} \tag{3}$$

$$CA_{it} = \beta_0 + \beta_1 GB_{it} + \pi_{it} \tag{4}$$

where ω_{it} and π_{it} are the random disturbance terms of country i in year t.

The Varying-Coefficient model assumes that α_1 and β_1 (respectively, in (3) and in (4)) change slowly and not systematically over time:

$$\alpha_{1t} = \alpha_{1t-1} + \tau_t \tag{5}$$

$$\beta_{1t} = \beta_{1t-1} + \varepsilon_t \tag{6}$$

The change of the coefficients is denoted by τ_t and ε_t, which are i.i.d. with zero mean and variance σ^2, as noted by Schlicht (2003). The variances of the disturbances are computed using a method of moments estimator, which coincides with the maximum-likelihood estimator for large samples, although it is statistically more efficient and numerically more transparent and straightforward to interpret in small samples. The specifications (3) and (4) are special cases when the variance of the disturbances in the coefficients approaches to zero.

The approach proposed by Schlicht (2003) has several advantages compared to other methods to compute time-varying coefficients (TVC), such as rolling windows and Gaussian methods. First, it allows using all observations in the sample to estimate the magnitude of spillover in each year, which by construction is not possible in the rolling windows approach. Second, changes in the size of estimated TVC in a given year come from innovations in the same year, rather than from shocks occurring in neighbouring years. Third, it reflects the fact that changes in policy are slow and depend on the immediate past. Lastly, it reduces reverse causality problems when the estimated TVC is used as explanatory variable since it depends on the past.

Next, we use the computed time-varying estimates as dependent variables and identify explanatory factors for these marginal responses, the same as in the specifications (1) and (2), including the CAPB and the government balance. The equations that identify the explanatory factors of the TVC are estimated using Pooled Ordinary Least Squares (POLS) with Driscoll-Kraay (1998) robust standard errors. We chose this model and not a fixed effects model, since for some countries the time-varying coefficients are almost constant. In this case, we admit that a fixed effects model would not be adequate.

4 Empirical analysis

In Sect. 4, we describe the data considered in the empirical analysis and we also report and discuss the obtained results.

4.1 Data

The sample in our paper includes yearly data for 19 Eurozone countries, between 1995 and 2020, namely: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

One dependent variable under analysis is the current account balance as a percentage of GDP (CA). In addition to the CAPB and to the government balance, both as a percentage of GDP, PB and GB, respectively, and following Afonso and Coelho (2022), we also consider as explanatory variables: real effective exchange rate (ER), real GDP growth rate per capita (GDP), long-run term real interest rate (IR), trade openness (TO), youth dependency ratio (YD), old-age dependency ratio (OD), share of private sector credit flow consolidated as a percentage of GDP (CRED), inflation rate (INF), government effectiveness index (GOV), and fiscal rules index (FR).

Moreover, with the aim of testing the existence of asymmetric effects of the cyclically adjusted primary balance and the budget balance on the current account balance, we introduce several dummy variables, namely: a crisis dummy, D2010 (which assumes the value 1 from 2010); DGB (which assumes the value 1 if the share of the budget balance as a percentage of GDP is less than − 3%); DCA (which assumes the value 1 if the share of the current account balance on GDP is outside the range between − 4 and 6%, the thresholds provided in scoreboard of the Excessive Macroeconomic Imbalances Procedure from the European Commission); and D60 (which assumes the value 1 if the debt-to-GDP ratio is less than or equal to 60%).

Additionally, as explained variables, we consider the marginal response of the current account balance to a unit change in the CAPB, both variables as a percentage of GDP (PB_TVC), and the marginal response of the current account balance to a unit change in the government balance, both variables as a percentage of GDP (GB_TVC).

We provide a detailed description of the variables as well as of the data sources, the summary statistics for the panel and by country, and the correlation matrix between the variables used in the analysis in the Appendix (Tables 5, 6, 7, 8, 9).

4.2 Results

SubSect. 4.2 describes, on the one hand, the evidence found regarding the determinants of the current account balance, with particular emphasis on fiscal variables, namely the CAPB and the government balance. On the other hand, the effects of the determinants of the time-varying coefficients of the current account balance are shown.

4.2.1 CAPB and government balance as determinants of the current account balance

Table 1 shows that the CAPB has a positive and highly significant effect on the current account balance. More specifically, according to specification (1), a 1 pp change

Table 1 Fixed effects with Driscoll–Kraay errors estimates, CAPB

Regressors/Specification	(1)	(2)	(3)	(4)	(5)
PB	0.260***	0.526***	0.531***	0.169***	0.192**
	(0.089)	(0.150)	(0.110)	(0.054)	(0.081)
ER	−0.061	−0.033	−0.045	−0.052	−0.051
	(0.064)	(0.068)	(0.064)	(0.065)	(0.065)
GDP	0.017	−0.014	0.036	0.007	0.021
	(0.088)	(0.093)	(0.091)	(0.091)	(0.095)
IR	0.552***	0.513**	0.555***	0.524***	0.569***
	(0.159)	(0.180)	(0.162)	(0.176)	(0.168)
TO	0.003	0.005	0.004	0.002	0.000
	(0.022)	(0.022)	(0.023)	(0.022)	(0.023)
YD	0.208	0.227	0.230	0.187	0.186
	(0.204)	(0.215)	(0.194)	(0.202)	(0.217)
OD	0.440***	0.452***	0.464***	0.428***	0.484***
	(0.078)	(0.071)	(0.077)	(0.073)	(0.086)
CRED	−0.033	−0.038	−0.032	−0.034	−0.035
	(0.025)	(0.027)	(0.024)	(0.025)	(0.026)
INF	−0.008	−0.007	0.023	−0.033	0.039
	(0.144)	(0.146)	(0.135)	(0.128)	(0.146)
GOV	0.050***	0.043***	0.049***	0.048***	0.047***
	(0.007)	(0.009)	(0.007)	(0.008)	(0.008)
FR	0.015***	0.015***	0.014***	0.014**	0.014**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
PB × D2010		−0.449***			
		(0.150)			
PB × DGB			−0.402***		
			(0.128)		
PB × DCA				0.283*	
				(0.159)	
PB × D60					0.302**
					(0.139)
Observations	372	372	372	372	372
R-squared (within)	0.463	0.481	0.476	0.47	0.469
Number of groups	19	19	19	19	19

Notes: (a) The dependent variable is the current account balance as a percentage of GDP; (b) Standard errors in brackets; (c) Constant term estimated, but omitted for reasons of parsimony; (d) *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively

in the CAPB results in a 0.26 pp change in the current account balance. Before 2010, this effect is higher, by 0.526 pp, while, after that year, the effect attenuates to 0.077 pp (=0.526–0.449). If the government balance is equal to or greater than −3% of GDP, the effect is 0.531 pp, but, if it is lower than this threshold, it is attenuated to 0.129 pp (=0.531–0.402).

In addition, if the current account balance is outside the range between −4 and 6% of GDP, the effect of the CAPB on the current account balance is 0.169 pp. If, on the contrary, it falls outside the referred range, the effect is amplified to 0.452 pp

(=0.169+0.283). Finally, if the public debt is less than 60% of GDP, the effect of the CAPB on the current account balance is 0.494 pp (=0.192+0.302). However, if this threshold is exceeded, the effect is only 0.192 pp.

The effects above mentioned suggest the occurrence of a stronger Ricardian effect from 2010, when the budget deficit is above 3% of GDP and when the public debt-to-GDP ratio is greater than 60%.

Table 2 presents the results of the estimations when considering the government balance as a determinant of the current account balance. Specification (1) reports that, at a 10% significance level, a 1 pp change in the government balance results in a 0.151 pp change in the current account balance. This estimate is lower than that presented in specification (1) of Table 1. If the budget balance is less than −3% of GDP, the effect of the budget balance on the current account balance is 0.117 pp (=0.471–0.354); if it is equal to or greater than this threshold, the effect is 0.471 pp. These results are close to those found in the estimates in Table 1.

In addition, if the current account balance is outside the range established in the Excessive Macroeconomic Imbalances Procedure from the European Commission, the effect of the budget balance on the current account balance is 0.407 pp, at a 1% significance level. If it is within the range, the effect of the budget balance on the current account balance is non-significant. In addition, no evidence was found pointing to different results before and after 2010 and different public debt-to-GDP ratios.

A relevant aspect to mention, based on the results in Tables 1 and 2, is related to the statistical significance of the real long-term interest rate, old-age dependency ratio, government effectiveness index and fiscal rules index as determinants of the current account balance in the Eurozone countries between 1995 and 2020, together with the CAPB and the government balance.

4.3 Sensitivity analysis

In order to test the robustness of the results reported in Tables 1 and 2, we perform sensitivity analysis, dividing the sample according to four criteria, namely: (i) before and after 2010; (ii) whether the average government balance of the country is less than or equal to or greater than 3% of GDP; (iii) whether the average current account balance of the country is within the range between −4 and 6% of GDP or outside this range; and (iv) whether the average public debt-to-GDP ratio of the country is less than or equal to or greater than 60%, for both measures of the fiscal position considered.[1]

In the Appendix, Tables 6 and 7 present the results of the robustness tests. The CAPB has a higher effect on the current account balance before 2010, in countries whose average government balance as a percentage of GDP is less than −3%, in countries whose average current account balance as a percentage of GDP is outside the range between −4 and 6%, and in countries whose average public debt-to-GDP

[1] In Table 9, in the Appendix, we present a list of the countries according to the various criteria considered.

Table 2 Fixed effects with Driscoll-Kraay errors Estimates, government balance

Regressors/Specification	(1)	(2)	(3)	(4)	(5)
GB	0.151*	0.164	0.471**	0.040	0.150**
	(0.074)	(0.124)	(0.168)	(0.051)	(0.062)
ER	−0.053	−0.052	−0.058	−0.055	−0.053
	(0.065)	(0.065)	(0.064)	(0.061)	(0.066)
GDP	0.019	0.015	0.016	−0.025	0.019
	(0.093)	(0.097)	(0.099)	(0.090)	(0.098)
IR	0.621***	0.616***	0.599***	0.584***	0.620***
	(0.154)	(0.158)	(0.162)	(0.153)	(0.156)
TO	0.005	0.005	0.005	0.005	0.005
	(0.021)	(0.022)	(0.022)	(0.021)	(0.022)
YD	0.227	0.233	0.258	0.262	0.227
	(0.200)	(0.195)	(0.201)	(0.194)	(0.199)
OD	0.415***	0.409***	0.436***	0.360***	0.415***
	(0.079)	(0.074)	(0.081)	(0.062)	(0.079)
CRED	−0.040	−0.041	−0.044	−0.041	−0.040
	(0.027)	(0.028)	(0.026)	(0.024)	(0.029)
INF	−0.039	−0.041	−0.061	−0.029	−0.039
	(0.140)	(0.141)	(0.130)	(0.125)	(0.142)
GOV	0.052***	0.052***	0.054***	0.050***	0.052***
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
FR	0.016***	0.016***	0.016***	0.016***	0.016***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
GB × D2010		−0.019			
		(0.086)			
GB × DGB			−0.354***		
			(0.122)		
GB × DCA				0.407***	
				(0.103)	
GB × D60					0.001
					(0.122)
Observations	372	372	372	372	372
R − squared (within)	0.448	0.448	0.459	0.477	0.448
Number of groups	19	19	19	19	19

(a) The dependent variable is the current account balance as a percentage of GDP; (b) Standard errors in brackets; (c) Constant term estimated, but omitted for reasons of parsimony; (d) *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively

ratio is less than or equal to 60%. In turn, the government balance has a higher effect on the current account balance after 2010, in countries whose average government balance as a percentage of GDP is less than − 3%, and in countries whose average public debt-to-GDP ratio is less than or equal to 60%.

4.4 Determinants of time-varying coefficients of the current account balance

In this subsection, we present and discuss the empirical results concerning the determinants of the time-varying coefficients of the current account balance relative to the CAPB and the budget balance.

Table 3 shows the results of the estimates that identify the determinants of the time-varying coefficients of the current account balance's marginal response to a unit change in the CAPB. Among the factors considered, the real effective exchange rate, the growth rate of real GDP per capita, the real long-term interest rate, the degree of trade openness, the old-age dependency ratio, the inflation rate, and the government effectiveness index have a positive and significant effect on the time-varying responses. In the several specifications presented, the youth dependency ratio has a negative sign, but it is only significant at a 10% level in the specification (6), and the private sector credit and the fiscal rules index are non-significant. Regarding the role of the CAPB, this has a negative and significant effect from 2010, when the government balance is less than − 3% of GDP, when the current account balance is outside the range between − 4 and 6% of GDP, and when public debt-to-GDP ratio is above 60%. On the other hand, if public debt-to-GDP ratio is equal to or greater than 60%, the effect is 2.504 pp (= 3.732–1.228).

The results of the estimates that identify the determinants of the time-varying coefficients of the current account balance's marginal response to a unit change in the government balance are reported in Table 4. By some regressions, the real GDP growth rate per capita, the real long-term interest rate, the degree of trade openness, the old-age dependency ratio, the government effectiveness index and the fiscal rules index have a significant effect on time-varying responses, negative in the case of fiscal rules index and positive for the remaining variables. The real effective exchange rate, the youth dependence ratio, the private sector credit and the inflation rate are non-significant. The government balance, in turn, has a negative effect (specifications (2) and (6)). According to specification (3), before 2010, the effect is − 2.039 pp, and after 2010 it is attenuated to − 0.279 pp (= 1.760–2.039). On the other hand, based on specification (5), the effect is negative by 1.718 pp when the current account balance is outside the range between − 4 and 6% of GDP.

Finally, based on Specifications (1) of Tables 3 and 4, we introduce the current account balance as an explanatory variable for the responses of the current account balance to changes in the CAPB and the government balance. We can then conclude that the response of the time-varying coefficients of the current account balance to changes in the CAPB does not depend on the level of the current account balance. Nevertheless, the current account balance is a determinant of the time-varying coefficients of the current account balance to changes in the budget balance.[2]

[2] These results are available upon request.

Table 3 POLS with Driscoll–Kraay errors estimates, PB_TVC

Regressors/Specification	(1)	(2)	(3)	(4)	(5)	(6)
ER	1.273**	1.306**	1.401**	1.390**	1.228**	1.406**
	(0.511)	(0.524)	(0.556)	(0.542)	(0.510)	(0.599)
GDP	1.422*	1.466**	1.353*	1.592**	1.528**	1.450**
	(0.720)	(0.695)	(0.679)	(0.702)	(0.643)	(0.677)
IR	3.220***	3.288***	3.168***	3.277***	3.395***	3.338***
	(0.964)	(0.953)	(0.938)	(0.943)	(0.894)	(1.002)
TO	0.093***	0.095***	0.096***	0.092***	0.099***	0.088***
	(0.015)	(0.017)	(0.016)	(0.017)	(0.017)	(0.022)
YD	− 1.276	− 1.296	− 1.302	− 1.338	− 1.254	− 1.548*
	(0.888)	(0.871)	(0.869)	(0.867)	(0.865)	(0.762)
OD	4.213***	4.257***	4.279***	4.283***	4.229***	4.234***
	(0.583)	(0.621)	(0.626)	(0.619)	(0.596)	(0.645)
CRED	0.124	0.127	0.111	0.121	0.121	0.076
	(0.157)	(0.154)	(0.149)	(0.155)	(0.150)	(0.160)
INF	2.145*	2.105*	2.080*	2.264*	2.189*	2.630**
	(1.106)	(1.118)	(1.124)	(1.085)	(1.179)	(1.043)
GOV	0.144***	0.149***	0.128***	0.146***	0.159***	0.119***
	(0.036)	(0.034)	(0.028)	(0.033)	(0.031)	(0.034)
FR	0.011	0.012	0.012	0.013	0.018	0.013
	(0.014)	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)
PB		− 0.266	0.717	1.008	0.326	− 1.228**
		(0.425)	(0.834)	(0.922)	(0.366)	(0.576)
PB × D2010			− 1.695*			
			(0.894)			
PB × DGB				− 2.001**		
				(0.919)		
PB × DCA					− 1.953**	
					(0.749)	
PB × D60						3.732***
						(0.924)
Observations	372	372	372	372	372	372
R-squared	0.290	0.290	0.295	0.296	0.297	0.309
Number of groups	19	19	19	19	19	19

(a) The dependent variable is the marginal response of the current account balance to a unit change in the CAPB, both variables as a percentage of GDP (PB_TVC); (b) Standard errors in brackets; (c) Constant term estimated, but omitted for reasons of parsimony; (d) *, **, *** denote statistical significance at the 10%, 5%, and 1% level

5 Conclusion

In this article, we have empirically analyzed the looking glass relationship between the government balance and the current account balance for 19 Eurozone countries between 1995 and 2020. We used as fiscal measures the CAPB and the government balance. The obtained results validate the TDH, although the effect on the current account balance is greater when we use the CAPB. This result means that, when

Table 4 POLS with Driscoll-Kraay errors Estimates, GB_TVC

Regressors/Specification	(1)	(2)	(3)	(4)	(5)	(6)
ER	0.495	0.693	0.442	0.681	0.625	0.688
	(0.500)	(0.541)	(0.494)	(0.566)	(0.531)	(0.544)
GDP	0.571	0.862*	1.001*	0.873*	0.916*	0.822**
	(0.410)	(0.415)	(0.512)	(0.426)	(0.448)	(0.379)
IR	1.179*	1.092*	1.409**	0.989	1.108*	1.041*
	(0.568)	(0.528)	(0.558)	(0.575)	(0.541)	(0.525)
TO	0.200***	0.207***	0.217***	0.205***	0.211***	0.205***
	(0.020)	(0.022)	(0.022)	(0.025)	(0.023)	(0.024)
YD	−0.210	−0.323	−0.357	−0.350	−0.342	−0.380
	(0.941)	(0.953)	(0.942)	(0.962)	(0.931)	(0.882)
OD	4.075***	4.162***	4.247***	4.177***	4.178***	4.068***
	(0.434)	(0.448)	(0.497)	(0.461)	(0.454)	(0.379)
CRED	−0.027	0.022	0.061	0.001	0.015	0.001
	(0.154)	(0.157)	(0.156)	(0.159)	(0.166)	(0.171)
INF	0.320	0.351	0.484	0.302	0.322	0.434
	(1.638)	(1.607)	(1.511)	(1.598)	(1.594)	(1.561)
GOV	0.191***	0.216***	0.228***	0.214***	0.228***	0.213***
	(0.037)	(0.046)	(0.046)	(0.046)	(0.050)	(0.048)
FR	−0.091***	−0.084***	−0.071***	−0.085***	−0.078***	−0.083***
	(0.011)	(0.011)	(0.015)	(0.011)	(0.012)	(0.010)
GB		−0.898*	−2.039***	0.176	−0.334	−1.028**
		(0.480)	(0.607)	(1.212)	(0.331)	(0.417)
GB × D2010			1.760**			
			(0.662)			
GB × DGB				−1.220		
				(1.121)		
GB × DCA					−1.718**	
					(0.767)	
GB × D60						0.611
						(0.855)
Observations	354	354	354	354	354	354
R-squared	0.295	0.301	0.313	0.304	0.314	0.302
Number of groups	18	18	18	18	18	18

(a) The dependent variable is the marginal response of the current account balance to a unit change in the government balance, both variables as a percentage of GDP (GB_TVC); (b) Standard errors in brackets; (c) Constant term estimated, but omitted for reasons of parsimony; (d) *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively

we exclude the cyclical component of the primary government balance, the effect of public accounts on external accounts is higher. Therefore, in the relationship

analysis between fiscal and external balances, structural government revenues and expenditures are shown to have greater relevance.

In the sensitivity analysis, we have concluded that the CAPB has a higher effect on the current account balance before 2010, and when average government balances are less than − 3%, average current account balances are outside the range between − 4 and 6% and average public debt-to-GDP ratio is less than or equal to 60%. The government balance has, in turn, a higher effect on the current account balance after 2010, and when average government balances are less than − 3% and average public debt-to-GDP ratio is less than or equal to 60%. These results suggest the existence of asymmetric effects of the current account balance responses and of Ricardian effects.

In the subsequent analysis, we have estimated time-varying coefficients of current account balance responses to unit changes in the CAPB and in the government balance. As a result, we have identified key determinants of these time-varying responses. We confirmed that some of the determinants of the current account balance are also determinants of the time-varying responses of the current account balance. The effects of the CAPB and the government balance are dependent on the levels of the government balance, current account balance and public debt, as well as the time period (before and after 2010).

From the point of view of economic policy proposals, it is then relevant to pay attention to the levels of the government balance, current account balance and public debt to mitigate the effects of fiscal deficits on the external imbalances. Moreover, policy makers should also consider the relevance of discretionary fiscal policies and especially structural government revenues and expenditures. Additionally, as a suggestion for further research, it will be interesting to study the influence of the several components of the government budget balance on the current account balance, in order to ascertain the effects by budgetary item.

Finally, in our analysis, we have investigated the effects of the budget balance on the current account balance, and we have concluded that they are small, which means that fiscal policy is not effective, on a Eurozone scale, to reduce external imbalances. If fiscal tightening measures were to be implemented, they would have to be of such magnitude that they would trigger economic recession and increase unemployment. With regard to the role of monetary policy, it could contribute to the reduction of external imbalances by increasing the long-term real interest rate. From the results found, we have concluded that the exchange rate, the GDP growth and the inflation rate do not influence the fiscal variables.

This study, however, does not investigate the inverse relationship, i.e., the relation between external accounts balance and fiscal variables. The combination of both analyzes would allow us to obtain a deeper vision of the nature and extent of both deficits and their main determinants.

Appendix

See Tables 5, 6, 7, 8, 9, 10 and 11

Table 5 Description of the variables and the data sources

Variable	Definition	Source
CA	Current account balance as a percentage of GDP	AMECO*
PB	Cyclically adjusted primary government balance as a percentage of GDP	AMECO
GB	General government balance as a percentage of GDP	AMECO
ER	Relative variation of the real effective exchange rate index compared to the previous year, deflator: unit labour costs in the total economy—37 trading partners—industrial countries (2010 = 100)	Authors' calculations based on Eurostat data
GDP	Real GDP growth rate per capita compared to the previous year, PPP (constant 2017 international $) real GDP per capita	Authors' calculations based on World Bank data
IR	Long-term real interest rate	AMECO
TO	Trade openness, the sum of exports with imports measured As a share of GDP	Authors' calculations based on AMECO data
YD	Youth dependency ratio, the share of population ages 0–14 on population ages 15–64	Authors' calculations based on World Bank data
OD	Old-age dependency ratio, the share of population ages 65 and above on population ages 15–64	Authors' calculations based on World Bank data
CRED	Private sector credit flow, consolidated as a percentage of GDP, the share of the sum of debt securities by sector with loans by sector on GDP	Authors' calculations based on Eurostat data
INF	Inflation rate	World Bank
GOV	Government Effectiveness Index	Worldwide Governance Indicators (2021)
FR	Fiscal Rule Index	European Commission (2021)
D2010	Dummy that takes the value 1 from 2010, inclusive, and 0, otherwise	Authors' calculations
DGB	Dummy for values of GB (takes the value 1, if the share of the government balance as a percentage of GDP is less than − 3%, and 0, otherwise)	Authors' calculations
DCA	Dummy for values of CA (takes the value of 0, if CA is between − 4% and 6%, and 1, otherwise)	Authors' calculations
D60	Dummy for values of the public debt as a percentage of GDP (takes the value 1, if the share of the public debt as a percentage of GDP is less than or equal to 60%, and 0, otherwise)	Authors' calculations, based on AMECO data
PB_TVC	Marginal response of the current account balance to a unit change in the cyclically adjusted primary government balance, both variables as a percentage of GDP	Authors' calculations based on Schlicht (2003)' procedure
GB_TVC	Marginal response of the current account balance to a unit change in the government balance, both variables as a percentage of GDP	Authors' calculations based on Schlicht (2003)' procedure

*AMECO is the annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs

Table 6 Summary Statistics, for the panel

Variable	Obs.	Mean	Std. Dev	Maximum	Minimum
CA	494	−0.010	0.059	0.118	−0.280
PB	489	0.001	0.031	0.093	−0.276
GB	494	−0.027	0.037	0.069	−0.321
ER	494	0.009	0.050	0.430	−0.217
GDP	490	0.021	0.040	0.240	−0.145
IR	451	0.019	0.033	0.244	−0.123
TO	494	1.215	0.686	3.801	0.371
YD	494	0.250	0.036	0.375	0.196
OD	494	0.245	0.051	0.366	0.152
CRED	486	0.048	0.097	1.350	−0.254
INF	494	0.026	0.035	0.396	−0.045
GOV	418	1.238	0.491	2.261	0.145
FR	475	0.178	1.004	3.069	−0.986
PB_TVC	489	0.086	0.356	0.876	−1.631
GB_TVC	468	−0.017	0.334	1.307	−1.209

Table 7 Summary statistics, by country

Country	Statistic	CA	PB	GB	PB_TVC	GB_TVC
Austria	Mean	0.011	0.004	−0.026	−0.030	0.022
	Std. Dev	0.021	0.013	0.020	0.000	0.000
Belgium	Mean	0.029	0.024	−0.023	0.160	−0.019
	Std. Dev	0.022	0.028	0.022	0.000	0.000
Cyprus	Mean	−0.064	−0.003	−0.029	−0.869	−0.797
	Std. Dev	0.070	0.024	0.029	0.672	0.422
Estonia	Mean	−0.046	0.001	0.000	0.876	−0.439
	Std. Dev	0.059	0.019	0.019	0.000	0.000
Finland	Mean	0.025	0.022	0.001	0.188	0.080
	Std. Dev	0.034	0.027	0.034	0.000	0.000
France	Mean	0.002	−0.010	−0.038	0.242	0.150
	Std. Dev	0.014	0.013	0.018	0.000	0.000
Germany	Mean	0.043	0.007	−0.018	0.110	0.092
	Std. Dev	0.037	0.017	0.026	0.000	0.000
Greece	Mean	−0.071	0.005	−0.067	0.149	0.133
	Std. Dev	0.044	0.049	0.042	0.000	0.000
Ireland	Mean	−0.010	−0.008	−0.029	−0.082	−0.046
	Std. Dev	0.038	0.066	0.076	0.294	0.000
Italy	Mean	0.005	0.024	−0.035	0.266	−0.051
	Std. Dev	0.020	0.020	0.018	0.000	0.000
Latvia	Mean	−0.054	−0.010	−0.021	−0.197	N/A
	Std. Dev	0.068	0.019	0.025	0.000	N/A
Lithuania	Mean	−0.045	−0.016	−0.029	0.082	−0.375
	Std. Dev	0.059	0.029	0.033	0.000	0.000
Luxembourg	Mean	0.051	0.022	0.017	0.146	0.441
	Std. Dev	0.039	0.015	0.020	0.053	0.264
Malta	Mean	−0.020	−0.009	−0.037	0.126	0.280
	Std. Dev	0.064	0.027	0.034	0.209	0.167
Netherlands	Mean	0.069	0.009	−0.018	0.159	0.113
	Std. Dev	0.021	0.018	0.025	0.000	0.000
Portugal	Mean	−0.055	−0.011	−0.048	0.387	0.135
	Std. Dev	0.045	0.025	0.026	0.000	0.000
Slovakia	Mean	−0.035	−0.026	−0.047	−0.170	0.155
	Std. Dev	0.038	0.025	0.029	0.000	0.614
Slovenia	Mean	0.002	−0.013	−0.034	0.083	−0.031
	Std. Dev	0.039	0.026	0.033	0.000	0.000
Spain	Mean	−0.022	−0.005	−0.041	−0.070	−0.145
	Std. Dev	0.038	0.024	0.041	0.000	0.000

N/A Not Available

Table 8 Correlation matrix

	CA	PB	GB	ER	GDP	IR	TO	YD	OD	CRED	INF	GOV	FR	PB_TVC	GB_TVC
CA	1.000														
PB	0.379	1.000													
GB	0.239	0.718	1.000												
ER	−0.248	−0.103	0.087	1.000											
GDP	−0.207	0.078	0.380	−0.002	1.000										
IR	0.035	0.046	−0.394	−0.345	−0.299	1.000									
TO	0.187	0.019	0.239	0.009	0.120	−0.239	1.000								
YD	−0.027	−0.048	0.026	0.042	0.228	0.088	0.166	1.000							
OD	0.256	0.138	0.010	−0.068	−0.287	−0.167	−0.327	−0.539	1.000						
CRED	−0.134	0.011	0.221	0.054	0.178	−0.135	0.183	0.136	−0.219	1.000					
INF	−0.310	−0.101	0.037	0.535	0.245	−0.157	−0.059	0.187	−0.274	0.104	1.000				
GOV	0.490	0.212	0.303	−0.158	−0.078	−0.135	0.152	0.307	−0.123	0.082	−0.217	1.000			
FR	0.395	0.238	0.320	−0.050	−0.048	−0.302	0.087	−0.268	0.545	−0.150	−0.268	0.095	1.000		
PB_TVC	0.188	0.134	0.122	0.087	−0.030	−0.005	−0.040	−0.227	0.415	−0.015	0.035	−0.016	0.253	1.000	
GB_TVC	0.283	0.062	0.010	−0.076	−0.053	−0.077	0.159	−0.082	0.159	0.015	−0.085	0.174	−0.043	0.360	1.000

Table 9 List of countries according to the criteria considered in the sensitivity analysis

Government balance as a percentage of GDP equal or above − 3%	Austria (− 2.6%), Belgium (2.28%), Cyprus (− 2.92%), Estonia (0.01%), Finland (0.15%), Germany (− 1.76%), Ireland (− 2.93%), Latvia (− 2.08%), Lithuania (− 2.9%), Luxembourg (1.7%), and the Netherlands (− 1.77%)
Government balance as a percentage of GDP below − 3%	France (− 3.8%), Greece (− 6.67%), Italy (− 3.49%), Malta (− 3.67%), Portugal (− 4.77%), Slovakia (− 4.65%), Slovenia (− 3.43%), and Spain (− 4.05%)
Current account balance as a percentage of GDP inside the interval between − 4 and 6%	Austria (1.14%), Belgium (2.91%), Finland (2.47%), France (0.17%), Germany (4.31%), Ireland (− 1.04%), Italy (0.47%), Luxembourg (5.12%), Malta (− 2.04%), Slovakia (− 3.47%), Slovenia (0.15%), and Spain (− 2.23%)
Current account balance as a percentage of GDP outside the interval between − 4 and 6%	Cyprus (− 6.44%), Estonia (− 4.6%), Greece (− 7.08%), Latvia (− 5.37%), Lithuania (− 4.49%), the Netherlands (6.95%), and Portugal (− 5.45%)
Public debt-to-GDP ratio below or equal 60%	Estonia (7.42%), Finland (49.6%), Latvia (25.46%), Lithuania (27.37%), Luxembourg (14.61%), Malta (58.15%), the Netherlands (57.43%), Slovakia (42.99%), and Slovenia (42.83%)
Public debt- to-GDP ratio above 60%	Austria (73%), Belgium (105.92%), Cyprus (72.09%), France (77.33%), Germany (66.47%), Greece (135.39%), Ireland (60.87%), Italy (120%), Portugal (90.32%), and Spain (69.38%)

Table 10 I Sensitivity analysis—fixed effects with Driscoll–Kraay errors estimates, CAPB

Sub– sample	Before 2010	After 2010	GB > −3%	GB < −3%	CA inside interval	CA outside interval	d < 60%	d > 60%
Regressors/Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PB	0.483***	0.196***	0.321**	0.366**	0.255	0.244*	0.645**	0.089
	(0.166)	(0.041)	(0.118)	(0.124)	(0.145)	(0.119)	(0.201)	(0.073)
ER	0.062	0.007	−0.074	0.075	0.054	−0.123	−0.147	0.143*
	(0.062)	(0.086)	(0.085)	(0.065)	(0.083)	(0.099)	(0.079)	(0.077)
GDP	−0.198	0.233	0.039	0.151	0.192	−0.089	−0.182*	0.497***
	(0.127)	(0.166)	(0.077)	(0.120)	(0.123)	(0.082)	(0.085)	(0.112)
IR	0.574**	0.264*	0.731***	0.181	0.574***	0.285*	0.553***	0.618***
	(0.201)	(0.143)	(0.158)	(0.115)	(0.123)	(0.127)	(0.118)	(0.154)
TO	0.068**	−0.081**	0.020	−0.025	−0.020	0.126***	0.004	−0.012
	(0.026)	(0.030)	(0.026)	(0.023)	(0.020)	(0.029)	(0.019)	(0.042)
YD	1.291***	−0.426	0.242	−0.521**	−0.055	0.366	0.425**	−0.164
	(0.301)	(0.303)	(0.189)	(0.182)	(0.229)	(0.258)	(0.150)	(0.302)
OD	0.681***	0.584***	0.544***	0.291	0.456***	−0.061	0.538***	0.513**
	(0.153)	(0.119)	(0.168)	(0.216)	(0.080)	(0.264)	(0.137)	(0.174)
CRED	−0.042	0.036	−0.016	−0.338***	−0.006	−0.356***	0.008	−0.215***
	(0.031)	(0.029)	(0.022)	(0.028)	(0.024)	(0.087)	(0.023)	(0.053)
INF	0.085	−0.305	0.074	−0.072	−0.024	−0.019	0.143	0.003
	(0.060)	(0.220)	(0.171)	(0.094)	(0.191)	(0.088)	(0.163)	(0.199)
GOV	0.044***	0.030***	0.044**	0.032***	0.033**	0.051***	0.031*	0.040***
	(0.008)	(0.010)	(0.014)	(0.007)	(0.012)	(0.014)	(0.015)	(0.010)
FR	0.010*	0.005	0.010	0.013**	0.015***	0.009	0.013*	0.008**
	(0.005)	(0.004)	(0.009)	(0.005)	(0.004)	(0.007)	(0.007)	(0.003)
Observations	191	181	211	161	242	130	166	206
Number of groups	19	19	11	8	12	7	9	10

Notes: (a) The dependent variable is the current account balance as a percentage of GDP; (b) Standard errors in brackets; (c) Constant term estimated, but omitted for reasons of parsimony; (d) *,**,*** denote statistical significance at the 10%, 5%, and 1% level, respectively

Table 11 Sensitivity analysis—fixed effects with Driscoll–Kraay errors estimates, government balance

Sub– sample	Before 2010	After 2010	GB > − 3%	GB < − 3%	CA inside interval	CA outside interval	d < 60%	d > 60%
Regressors/Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GB	0.225	0.146***	0.182*	0.395**	0.136	0.124	0.479**	− 0.035
	(0.165)	(0.025)	(0.095)	(0.129)	(0.100)	(0.158)	(0.178)	(0.043)
ER	0.039	0.008	− 0.082	0.076	0.070	− 0.124	− 0.233**	0.177**
	(0.064)	(0.083)	(0.090)	(0.065)	(0.087)	(0.103)	(0.077)	(0.073)
GDP	− 0.220	0.212	0.026	0.092	0.181	− 0.071	− 0.306**	0.554***
	(0.142)	(0.168)	(0.084)	(0.128)	(0.134)	(0.094)	(0.110)	(0.109)
IR	0.595***	0.296*	0.747***	0.333**	0.582***	0.352**	0.522***	0.650***
	(0.186)	(0.156)	(0.159)	(0.100)	(0.134)	(0.134)	(0.126)	(0.146)
TO	0.062**	− 0.076**	0.020	− 0.013	− 0.017	0.128***	0.013	− 0.014
	(0.025)	(0.033)	(0.024)	(0.022)	(0.018)	(0.026)	(0.019)	(0.038)
YD	1.258***	− 0.361	0.228	− 0.377*	0.008	0.362	0.585**	− 0.171
	(0.227)	(0.306)	(0.193)	(0.182)	(0.220)	(0.259)	(0.181)	(0.304)
OD	0.421***	0.518***	0.473**	0.144	0.413***	− 0.078	0.427**	0.551**
	(0.095)	(0.125)	(0.157)	(0.217)	(0.077)	(0.268)	(0.134)	(0.171)
CRED	− 0.043	0.028	− 0.021	− 0.431***	− 0.011	− 0.365***	− 0.004	− 0.214***
	(0.033)	(0.024)	(0.023)	(0.048)	(0.026)	(0.090)	(0.024)	(0.047)
INF	0.073	− 0.361	0.005	− 0.105	− 0.045	− 0.059	0.005	0.027
	(0.061)	(0.219)	(0.161)	(0.108)	(0.189)	(0.088)	(0.180)	(0.209)
GOV	0.050***	0.031***	0.049***	0.033***	0.039***	0.049**	0.035**	0.042***
	(0.010)	(0.010)	(0.014)	(0.009)	(0.011)	(0.016)	(0.014)	(0.010)
FR	0.009	0.006	0.012	0.015**	0.017***	0.011	0.012	0.010**
	(0.005)	(0.004)	(0.009)	(0.005)	(0.003)	(0.008)	(0.007)	(0.004)
Observations	191	181	211	161	242	130	166	206
Number of groups	19	19	11	8	12	7	9	10

(a) The dependent variable is the current account balance as a percentage of GDP; (b) Standard errors in brackets; (c) Constant term estimated, but omitted for reasons of parsimony; (d) *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively

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