Twin Deficits through the Looking Glass: Time-Varying Analysis in the Euro Area

António Afonso, José Carlos Coelho

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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 levels of government balance, current account balance and public debt, as a percentage of GDP, and the temporal period (before and after 2010) also influence these responses.

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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 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 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 theoretical perspectives on the relationship between both balances.

The purpose of this article is twofold. On the one hand, the effects of the cyclically adjusted primary government balance and the government balance on the current account balance are investigated. 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.[1] In this context, we assume 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. On the other hand, we compute time-varying coefficients of the responses of the current account balance to unit changes in the cyclically adjusted primary government balance and in the government balance and we identify the explanatory factors of these responses. This analysis is based on the assumption that external accounts balance responses are not constant over time, within as well as between countries, at least to some extent. This constitutes the novelty of the article, and, to the best of our knowledge, this is the first investigation to do so.

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
2.1. Theoretical 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; (iii) the Current Account Targeting Hypothesis; (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 turn negatively affects the current account balance. The second perspective suggests that an increasing fiscal deficit can translate in upward pressure on domestic absorption, which

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[1] 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).

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 Ricardian Equivalence Hypothesis (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 Current Account Targeting Hypothesis.

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: i) a partial Ricardian movement of private savings; and ii) a crowding out effect on investment.

2.2. Empirical Evidence

Many 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, VAR analysis and ARDL model (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.

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 and 1992-2010. 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 Twin Deficits and Ricardian Equivalence Hypotheses for Eurozone countries between 1970 and 2010, obtaining mixed results. More specifically, the results reported constitute supporting evidence for both hypotheses. The authors also divide the sample into sub-periods 1970-1991 and 1992-2010, and conclude by verifying the Ricardian Equivalence Hypothesis in the first sub-period and corroborate the TDH in the second sub-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 sample is divided into two sub-periods: 1970-1991 (pre-Maastricht Treaty) and 1992-2008 (post-Maastricht Treaty). 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.

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 instance, 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 impact of the fiscal balance on the current balance in the presence of fiscal rules. Afonso *et al.* (2021), 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, there is an 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

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 impact 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:

$$CA_{it} = \alpha_0 + \alpha_1 CAPB_{it} + \alpha_2 REER_{it} + \alpha_3 GR_{it} + \alpha_4 R_{it} + \alpha_5 TO_{it} + \alpha_6 YOUNGD_{it} +$$
$$+ \alpha_7 OLDD_{it} + \alpha_8 CRED_{it} + \alpha_9 INF_{it} + \alpha_{10} GOV_{it} + \alpha_{11} FR_{it} + \theta_i + \Omega_t + \mu_{it} \qquad (1)$$

$$CA_{it} = \beta_0 + \beta_1 GB_{it} + \beta_2 REER_{it} + \beta_3 GR_{it} + \beta_4 R_{it} + \beta_5 TO_{it} + \beta_6 YOUNGD_{it} +$$
$$+ \beta_7 OLDD_{it} + \beta_8 CRED_{it} + \beta_9 INF_{it} + \beta_{10} GOV_{it} + \beta_{11} FR_{it} + \delta_i + \rho_t + \varphi_{it} \qquad (2)$$

where CA_{it} is the CA-to-GDP ratio of country i ($i = 1, \ldots, n$) in year t ($t = 1, \ldots, T$); $CAPB_{it}$ 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; $REER_{it}$ is the real effective exchange rate of country i in year t; GR_{it} is the real GDP growth rate per capita of country i in year t; R_{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; *YOUNGD*$_{it}$ is the youth dependency ratio of country i in year t; *OLDD*$_{it}$ 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 cyclically adjusted primary government balance and the government balance, using the methodology proposed by Schlicht (2003), by introducing the assumption that the regression coefficients may vary over time. The Varying-Coefficient model assumes that α_1 and β_1 (respectively in (1) and in (2)) change slowly and not systematically over time:

$$\alpha_{1i,t} = \alpha_{1i,t-1} + \tau_{it} \tag{3}$$

$$\beta_{1i,t} = \beta_{1i,t-1} + \omega_{it}. \tag{4}$$

As it is assumed that the coefficients are random walks, the expected value of the coefficient at time t is equal to the value of the coefficient in time *t-1*. The change of the coefficients is denoted by τ_{it} and ω_{it}, which are assumed to be normally distributed with zero mean and variance σ_i^2. The variances σ_i^2 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 (1) and (2) 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 cyclically adjusted primary government balance and the government balance. The equations that identify the explanatory factors of the TVC are estimated using POLS (Pooled Ordinary Least Squares) 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 constant. In this case, we admit that a fixed effects model would not be adequate.

4. Empirical Analysis
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, CAPB and GB, respectively, and following Afonso and Coelho (2021a), we also consider as explanatory variables: real effective exchange rate (REER), real GDP growth rate per capita (GR), long-run term real interest rate (R), trade openness (TO), youth dependency ratio (YOUNGD), old-age dependency ratio (OLDD), share of private sector credit flow consolidated as a percentage of GDP (CRED), inflation rate (INF), government effectiveness index (GOV), and one fiscal rules index (FR).

Furthermore, 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 equal to or less than 60%).

Additionally, as explained variables, we consider: 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 (CAPB_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, and the correlation matrix between the variables used in the analysis in the Appendix (Tables A1-A3).

4.2. Results

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

Table 1 shows that the cyclically adjusted primary government balance has a positive and highly significant impact on the current account balance. More specifically, according to specification (1), a 1 pp change in the cyclically adjusted primary government balance results in a 0.26 pp change in the current account balance, ceteris paribus. In addition: (i) 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); (ii) if the government balance is equal to or greater than -3% of GDP, the impact is 0.531 pp, but, if it is lower than this threshold, it is attenuated to 0.129 pp (=0.531-0.402); (iii) if the current account balance is outside the range between -4 and 6% of GDP, the effect of the cyclically adjusted primary government balance on the current account balance is 0.169 pp. If, on the contrary, it falls outside the referred range, the impact is amplified to 0.452 pp (=0.169+0.283); and (iv) if the public debt as a percentage of GDP is less than 60%, the effect of the cyclically adjusted primary government balance 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 referred in (i), (ii) and (iv) suggest the occurrence of a stronger Ricardian effect from 2010, when the budget deficit is above 3% of GDP and when the ratio of public debt to GDP is greater than 60%.

Table 1: Fixed effects with Driscoll-Kraay errors Estimates, cyclically adjusted primary government balance

Regressors/Specification	(1)	(2)	(3)	(4)	(5)
$CAPB_{it}$	0.260***	0.526***	0.531***	0.169***	0.192**
	(0.089)	(0.150)	(0.110)	(0.054)	(0.081)
$REER_{it}$	-0.061	-0.033	-0.045	-0.052	-0.051
	(0.064)	(0.068)	(0.064)	(0.065)	(0.065)
GR_{it}	0.017	-0.014	0.036	0.007	0.021
	(0.088)	(0.093)	(0.091)	(0.091)	(0.095)
R_{it}	0.552***	0.513**	0.555***	0.524***	0.569***
	(0.159)	(0.180)	(0.162)	(0.176)	(0.168)
TO_{it}	0.003	0.005	0.004	0.002	0.000
	(0.022)	(0.022)	(0.023)	(0.022)	(0.023)
$YOUNGD_{it}$	0.208	0.227	0.230	0.187	0.186
	(0.204)	(0.215)	(0.194)	(0.202)	(0.217)
$OLDD_{it}$	0.440***	0.452***	0.464***	0.428***	0.484***
	(0.078)	(0.071)	(0.077)	(0.073)	(0.086)
$CRED_{it}$	-0.033	-0.038	-0.032	-0.034	-0.035
	(0.025)	(0.027)	(0.024)	(0.025)	(0.026)
INF_{it}	-0.008	-0.007	0.023	-0.033	0.039
	(0.144)	(0.146)	(0.135)	(0.128)	(0.146)
GOV_{it}	0.050***	0.043***	0.049***	0.048***	0.047***
	(0.007)	(0.009)	(0.007)	(0.008)	(0.008)
FR_{it}	0.015***	0.015***	0.014***	0.014**	0.014**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
$CAPB_{it}*D2010_{it}$		-0.449***			
		(0.150)			
$CAPB_{it}*DGB_{it}$			-0.402***		
			(0.128)		
$CAPB_{it}*DCA_{it}$				0.283*	
				(0.159)	
$CAPB_{it}*D60_{it}$					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.

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

Regressors/Specification	(1)	(2)	(3)	(4)	(5)
GB_{it}	0.151*	0.164	0.471**	0.040	0.150**
	(0.074)	(0.124)	(0.168)	(0.051)	(0.062)
$REER_{it}$	-0.053	-0.052	-0.058	-0.055	-0.053
	(0.065)	(0.065)	(0.064)	(0.061)	(0.066)
GR_{it}	0.019	0.015	0.016	-0.025	0.019
	(0.093)	(0.097)	(0.099)	(0.090)	(0.098)
R_{it}	0.621***	0.616***	0.599***	0.584***	0.620***
	(0.154)	(0.158)	(0.162)	(0.153)	(0.156)
TO_{it}	0.005	0.005	0.005	0.005	0.005
	(0.021)	(0.022)	(0.022)	(0.021)	(0.022)
$YOUNGD_{it}$	0.227	0.233	0.258	0.262	0.227
	(0.200)	(0.195)	(0.201)	(0.194)	(0.199)
$OLDD_{it}$	0.415***	0.409***	0.436***	0.360***	0.415***
	(0.079)	(0.074)	(0.081)	(0.062)	(0.079)
$CRED_{it}$	-0.040	-0.041	-0.044	-0.041	-0.040
	(0.027)	(0.028)	(0.026)	(0.024)	(0.029)
INF_{it}	-0.039	-0.041	-0.061	-0.029	-0.039
	(0.140)	(0.141)	(0.130)	(0.125)	(0.142)
GOV_{it}	0.052***	0.052***	0.054***	0.050***	0.052***
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
FR_{it}	0.016***	0.016***	0.016***	0.016***	0.016***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
$GB_{it}*D2010_{it}$		-0.019			
		(0.086)			
$GB_{it}*DGB_{it}$			-0.354***		
			(0.122)		
$GB_{it}*DCA_{it}$				0.407***	
				(0.103)	
$GB_{it}*D60_{it}$					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

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 2 presents the results of the estimates 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 as a percentage of GDP results in a 0.151 pp change in the current account balance, ceteris paribus. 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 as a percentage of GDP is outside the range established in the Excessive Macroeconomic Imbalances Procedure from the European Commission, the effect of the budget balance on the balance of current 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. Furthermore, no evidence was found pointing to different results before and after 2010 and different ratios of public debt to GDP.

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, in addition to the cyclically adjusted primary government balance and the government balance.

4.2.2 Sensitivity Analysis

In order to test the robustness of the results reported in Tables 1 and 2, we performed sensitivity analysis, dividing the sample according to four criteria, namely: (i) before and after 2010; (ii) whether the average government balance as a percentage of GDP of the country is less than or equal to or greater than 3%; (iii) whether the average current account balance as a percentage of GDP of the country is within the range between -4 and 6% or outside this range; and (iv) whether the average public debt as a percentage of GDP of the country is equal to or less than or greater than 60%, for both measures of the fiscal position considered.[234]

Tables 3, 4, 5 and 6 present the results of the robustness tests. The cyclically adjusted primary government balance has a higher impact on the current account balance before 2010, in countries whose average government balance as a percentage of GDP is less than -3%, in

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[2] 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%).

[3] 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%).

[4] Public debt as a percentage of GDP equal or below 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 as a percentage of GDP 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%).

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 as a percentage of GDP is equal to or less than 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 as a percentage of GDP is equal to or less than 60%.

Table 3: I Sensitivity Analysis - Fixed effects with Driscoll-Kraay errors Estimates, cyclically adjusted primary government balance

Sub-sample	Before 2010	After 2010	GB > -3%	GB < -3%
Regressors/Specification	(1)	(2)	(3)	(4)
$CAPB_{it}$	0.483***	0.196***	0.321**	0.366**
	(0.166)	(0.041)	(0.118)	(0.124)
$REER_{it}$	0.062	0.007	-0.074	0.075
	(0.062)	(0.086)	(0.085)	(0.065)
GR_{it}	-0.198	0.233	0.039	0.151
	(0.127)	(0.166)	(0.077)	(0.120)
R_{it}	0.574**	0.264*	0.731***	0.181
	(0.201)	(0.143)	(0.158)	(0.115)
TO_{it}	0.068**	-0.081**	0.020	-0.025
	(0.026)	(0.030)	(0.026)	(0.023)
$YOUNGD_{it}$	1.291***	-0.426	0.242	-0.521**
	(0.301)	(0.303)	(0.189)	(0.182)
$OLDD_{it}$	0.681***	0.584***	0.544***	0.291
	(0.153)	(0.119)	(0.168)	(0.216)
$CRED_{it}$	-0.042	0.036	-0.016	-0.338***
	(0.031)	(0.029)	(0.022)	(0.028)
INF_{it}	0.085	-0.305	0.074	-0.072
	(0.060)	(0.220)	(0.171)	(0.094)
GOV_{it}	0.044***	0.030***	0.044**	0.032***
	(0.008)	(0.010)	(0.014)	(0.007)
FR_{it}	0.010*	0.005	0.010	0.013**
	(0.005)	(0.004)	(0.009)	(0.005)
Observations	191	181	211	161
R-squared (within)	0.471	0.394	0.429	0.68
Number of groups	19	19	11	8

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 4: II Sensitivity Analysis - Fixed effects with Driscoll-Kraay errors Estimates, cyclically adjusted primary government balance

Sub-sample	CA between -4 and 6% of GDP	CA outside interval	Public debt < 60% of GDP	Public debt > 60% of GDP
Regressors/Specification	(1)	(2)	(3)	(4)
$CAPB_{it}$	0.255	0.244*	0.645**	0.089
	(0.145)	(0.119)	(0.201)	(0.073)
$REER_{it}$	0.054	-0.123	-0.147	0.143*
	(0.083)	(0.099)	(0.079)	(0.077)
GR_{it}	0.192	-0.089	-0.182*	0.497***
	(0.123)	(0.082)	(0.085)	(0.112)
R_{it}	0.574***	0.285*	0.553***	0.618***
	(0.123)	(0.127)	(0.118)	(0.154)
TO_{it}	-0.020	0.126***	0.004	-0.012
	(0.020)	(0.029)	(0.019)	(0.042)
$YOUNGD_{it}$	-0.055	0.366	0.425**	-0.164
	(0.229)	(0.258)	(0.150)	(0.302)
$OLDD_{it}$	0.456***	-0.061	0.538***	0.513**
	(0.080)	(0.264)	(0.137)	(0.174)
$CRED_{it}$	-0.006	-0.356***	0.008	-0.215***
	(0.024)	(0.087)	(0.023)	(0.053)
INF_{it}	-0.024	-0.019	0.143	0.003
	(0.191)	(0.088)	(0.163)	(0.199)
GOV_{it}	0.033**	0.051***	0.031*	0.040***
	(0.012)	(0.014)	(0.015)	(0.010)
FR_{it}	0.015***	0.009	0.013*	0.008**
	(0.004)	(0.007)	(0.007)	(0.003)
Observations	242	130	166	206
R-squared (within)	0.313	0.73	0.6	0.484
Number of groups	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 5: I Sensitivity Analysis - Fixed effects with Driscoll-Kraay errors Estimates, government balance

Sub-sample	Before 2010	After 2010	GB > -3%	GB < -3%
Regressors/Specification	(1)	(2)	(3)	(4)
GB_{it}	0.225	0.146***	0.182*	0.395**
	(0.165)	(0.025)	(0.095)	(0.129)
$REER_{it}$	0.039	0.008	-0.082	0.076
	(0.064)	(0.083)	(0.090)	(0.065)
GR_{it}	-0.220	0.212	0.026	0.092
	(0.142)	(0.168)	(0.084)	(0.128)
R_{it}	0.595***	0.296*	0.747***	0.333**
	(0.186)	(0.156)	(0.159)	(0.100)
TO_{it}	0.062**	-0.076**	0.020	-0.013
	(0.025)	(0.033)	(0.024)	(0.022)
$YOUNGD_{it}$	1.258***	-0.361	0.228	-0.377*
	(0.227)	(0.306)	(0.193)	(0.182)
$OLDD_{it}$	0.421***	0.518***	0.473**	0.144
	(0.095)	(0.125)	(0.157)	(0.217)
$CRED_{it}$	-0.043	0.028	-0.021	-0.431***
	(0.033)	(0.024)	(0.023)	(0.048)
INF_{it}	0.073	-0.361	0.005	-0.105
	(0.061)	(0.219)	(0.161)	(0.108)
GOV_{it}	0.050***	0.031***	0.049***	0.033***
	(0.010)	(0.010)	(0.014)	(0.009)
FR_{it}	0.009	0.006	0.012	0.015**
	(0.005)	(0.004)	(0.009)	(0.005)
Observations	191	181	211	161
R-squared (within)	0.431	0.38	0.409	0.676
Number of groups	19	19	11	8

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 6: II Sensitivity Analysis - Fixed effects with Driscoll-Kraay errors Estimates, government balance

Sub-sample	CA between -4 and 6% of GDP	CA outside interval	Public debt < 60% of GDP	Public debt > 60% of GDP
Regressors/Specification	(1)	(2)	(3)	(4)
GB_{it}	0.136	0.124	0.479**	-0.035
	(0.100)	(0.158)	(0.178)	(0.043)
$REER_{it}$	0.070	-0.124	-0.233**	0.177**
	(0.087)	(0.103)	(0.077)	(0.073)
GR_{it}	0.181	-0.071	-0.306**	0.554***
	(0.134)	(0.094)	(0.110)	(0.109)
R_{it}	0.582***	0.352**	0.522***	0.650***
	(0.134)	(0.134)	(0.126)	(0.146)
TO_{it}	-0.017	0.128***	0.013	-0.014
	(0.018)	(0.026)	(0.019)	(0.038)
$YOUNGD_{it}$	0.008	0.362	0.585**	-0.171
	(0.220)	(0.259)	(0.181)	(0.304)
$OLDD_{it}$	0.413***	-0.078	0.427**	0.551**
	(0.077)	(0.268)	(0.134)	(0.171)
$CRED_{it}$	-0.011	-0.365***	-0.004	-0.214***
	(0.026)	(0.090)	(0.024)	(0.047)
INF_{it}	-0.045	-0.059	0.005	0.027
	(0.189)	(0.088)	(0.180)	(0.209)
GOV_{it}	0.039***	0.049**	0.035**	0.042***
	(0.011)	(0.016)	(0.014)	(0.010)
FR_{it}	0.017***	0.011	0.012	0.010**
	(0.003)	(0.008)	(0.007)	(0.004)
Observations	242	130	166	206
R-squared (within)	0.292	0.722	0.585	0.481
Number of groups	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.

4.3. CAPB and government balance as determinants of time-varying coefficients of the current account balance

Table 7 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 cyclically adjusted primary government balance. 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 impact on the time-varying responses. In the several specifications presented, the young dependency ratio has a negative sign, but it is only significant at a 10% level in the specification (6), and the private sector credit

as a percentage of GDP and the fiscal rules index are non-significant. Regarding the role of the cyclically adjusted primary government balance, this has a negative and significant impact from 2010, when the government balance as a percentage of GDP is less than -3%, when the current account balance as a percentage of GDP is outside the range between -4 and 6%, and when public debt as a percentage of GDP is above 60%. On the other hand, if public debt as a percentage of GDP 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 8. 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 impact on time-varying responses, negative in the case of fiscal rules index and positive for the remaining variables. The real effective exchange rate, young dependence ratio, share of private credit flow as a percentage of GDP and 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 as a percentage of GDP is outside the range between -4 and 6%.

Finally, based on specifications (1) of Tables 7 and 8, we introduce the current account balance as a percentage of GDP as an explanatory variable for the responses of the current account balance to unit changes in the cyclically adjusted primary government balance and the government balance, both variables as a percentage of GDP. The results obtained point to a non-significant impact of the current account balance on the estimates of the time-varying coefficients of the current account balance in relation to unit changes in the cyclically adjusted primary government balance. Nevertheless, the current account balance has a positive and significant impact at a 5% level on the estimates of the time-varying coefficients of the current account balance in relation to unit changes in the government balance.[5]

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[5] These results are available upon request.

Table 7: POLS with Driscoll-Kraay errors Estimates, cyclically adjusted primary government balance

Regressors/Specification	(1)	(2)	(3)	(4)	(5)	(6)
$REER_{it}$	1.273**	1.306**	1.401**	1.390**	1.228**	1.406**
	(0.511)	(0.524)	(0.556)	(0.542)	(0.510)	(0.599)
GR_{it}	1.422*	1.466**	1.353*	1.592**	1.528**	1.450**
	(0.720)	(0.695)	(0.679)	(0.702)	(0.643)	(0.677)
R_{it}	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_{it}	0.093***	0.095***	0.096***	0.092***	0.099***	0.088***
	(0.015)	(0.017)	(0.016)	(0.017)	(0.017)	(0.022)
$YOUNGD_{it}$	-1.276	-1.296	-1.302	-1.338	-1.254	-1.548*
	(0.888)	(0.871)	(0.869)	(0.867)	(0.865)	(0.762)
$OLDD_{it}$	4.213***	4.257***	4.279***	4.283***	4.229***	4.234***
	(0.583)	(0.621)	(0.626)	(0.619)	(0.596)	(0.645)
$CRED_{it}$	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_{it}	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_{it}	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_{it}	0.011	0.012	0.012	0.013	0.018	0.013
	(0.014)	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)
$CAPB_{it}$		-0.266	0.717	1.008	0.326	-1.228**
		(0.425)	(0.834)	(0.922)	(0.366)	(0.576)
$CAPB_{it}*D2010_{it}$			-1.695*			
			(0.894)			
$CAPB_{it}*DGB_{it}$				-2.001**		
				(0.919)		
$CAPB_{it}*DCA_{it}$					-1.953**	
					(0.749)	
$CAPB_{it}*D60_{it}$						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

Notes: (a) The dependent variable is the 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; (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 8: POLS with Driscoll-Kraay errors Estimates, government balance

Regressors/Specification	(1)	(2)	(3)	(4)	(5)	(6)
$REER_{it}$	0.495	0.693	0.442	0.681	0.625	0.688
	(0.500)	(0.541)	(0.494)	(0.566)	(0.531)	(0.544)
GR_{it}	0.571	0.862*	1.001*	0.873*	0.916*	0.822**
	(0.410)	(0.415)	(0.512)	(0.426)	(0.448)	(0.379)
R_{it}	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_{it}	0.200***	0.207***	0.217***	0.205***	0.211***	0.205***
	(0.020)	(0.022)	(0.022)	(0.025)	(0.023)	(0.024)
$YOUNGD_{it}$	-0.210	-0.323	-0.357	-0.350	-0.342	-0.380
	(0.941)	(0.953)	(0.942)	(0.962)	(0.931)	(0.882)
$OLDD_{it}$	4.075***	4.162***	4.247***	4.177***	4.178***	4.068***
	(0.434)	(0.448)	(0.497)	(0.461)	(0.454)	(0.379)
$CRED_{it}$	-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_{it}	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_{it}	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_{it}	-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_{it}		-0.898*	-2.039***	0.176	-0.334	-1.028**
		(0.480)	(0.607)	(1.212)	(0.331)	(0.417)
$GB_{it}*D2010_{it}$			1.760**			
			(0.662)			
$GB_{it}*DGB_{it}$				-1.220		
				(1.121)		
$GB_{it}*DCA_{it}$					-1.718**	
					(0.767)	
$GB_{it}*D60_{it}$						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

Notes: (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; (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.

5. Conclusion

In this article we empirically analyze the looking glass relationship between the government balance and the current account balance for the 19 Eurozone countries between 1995 and 2020. We use as fiscal measures the cyclically adjusted primary government balance and the government balance, both as a percentage of GDP. The results obtained validate the TDH, although the impact on the current account balance is greater when we use the cyclically

adjusted primary government balance. This result means that, when we exclude the cyclical component of the primary government balance, the effect of public accounts on external accounts is higher. Therefore, in the relationship between fiscal and external balances, discretionary fiscal policies and structural government revenues and expenditures have greater relevance.

In the implemented sensitivity analysis, we conclude that the cyclically adjusted primary government balance has a higher impact on the current account balance before 2010, in countries whose average government balances as a percentage of GDP is less than -3%, in countries whose average current account balances as a percentage of GDP is outside the range between -4 and 6%, and in countries whose average public debt as a percentage of GDP is equal to or less than 60%. The government balance has, in turn, a higher effect on the current account balance after 2010, in countries whose average government balances as a percentage of GDP is less than -3%, and in countries whose average public debt as a percentage of GDP is equal to or less than 60%. These results suggest the existence of asymmetric effects of the current account balance responses and of Ricardian effects.

In the second step, we estimated time-varying coefficients of current account balance responses to unit changes in the cyclically adjusted primary government balance and in the government balance and we identified key determinants of these time-varying responses. We confirm that some of the determinants of the current account balance are also determinants of the time-varying responses of the current account balance, namely the cyclically adjusted primary government balance and the government balance. The impacts of these variables are also dependent on the levels of the government balance, current account balance and public debt, as a percentage of GDP, as well as the time period (before and after 2010).

From the point of view of economic policy recommendations, 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 share of discretionary fiscal policies and structural government revenues and expenditures. Additionally, as future research, it will be interesting to study the impact of the various components of the government budget balance on the current account balance, in order to ascertain whether, depending on the budgetary item, the impact is greater or lesser.

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Appendix

Table A1: Variables, definitions, and data sources

Variable	Definition	Source
CA	current account balance as a percentage of GDP	AMECO
CAPB	cyclically adjusted primary government balance as a percentage of GDP	AMECO
GB	general government balance as a percentage of GDP	AMECO
REER	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
GR	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
R	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
YOUNG	youth dependency ratio, the share of population ages 0-14 on population ages 15-64	Authors' calculations based on World Bank data
OLDD	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	Own definition
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)	Own definition
DCA	Dummy for values of CA (takes the value of 0, if CA is between -4% and 6%, and 1, otherwise)	Own definition
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 equal to or less than 60%, and 0, otherwise)	Own definition, based on AMECO data
CAPB_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

Table A2: Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Maximum	Minimum
CA	494	-0.010	0.059	0.118	-0.280
CAPB	489	0.001	0.031	0.093	-0.276
GB	494	-0.027	0.037	0.069	-0.321
REER	494	0.009	0.050	0.430	-0.217
GR	490	0.021	0.040	0.240	-0.145
R	451	0.019	0.033	0.244	-0.123
TO	494	1.215	0.686	3.801	0.371
YOUNGD	494	0.250	0.036	0.375	0.196
OLDD	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
CAPB_TVC	489	0.086	0.356	0.876	-1.631
GB_TVC	468	-0.017	0.334	1.307	-1.209

Table A3: Correlation matrix

	CA	CAPB	GB	REER	GR	R	TO	YOUNGD	OLDD	CRED	INF	GOV	FR	CAPB_TVC	GB_TVC
CA	1.000														
CAPB	0.379	1.000													
GB	0.239	0.718	1.000												
REER	-0.248	-0.103	0.087	1.000											
GR	-0.207	0.078	0.380	-0.002	1.000										
R	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								
YOUNGD	-0.027	-0.048	0.026	0.042	0.228	0.088	0.166	1.000							
OLDD	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		
CAPB_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