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Understanding the Euro Area Current Account

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Adopting a savings-investment approach to the current account, I link the euro area current account to a set of factors that have been identified as reliable covariates in the literature. The results suggest that corporate net lending and the fiscal balance are important covariates of the euro area current account. On the other hand, while demographic factors also matter, their relevance is of second order.

Introduction

Figure 1 shows significant movements of the euro area current account over the 1999-2018 period. It slipped into negative territory in the early years of the euro area, and then again during the Global Financial Crisis when the area wide current account deficit to GDP ratio reached 1.5 percent. The 2009-2011 period witnessed an approximate balance in external trade. After 2011, the current account turned positive and expanded significantly. At the end of 2018 it stood at EUR 343 billion, approximately 3 percent of euro area GDP. Such fluctuations make it desirable to have a framework that can explain the magnitude of external imbalances. Accordingly, in this paper I explore the covariates of the euro area current account.

From an accounting perspective, the current account is equal to the difference between domestic savings and investment.[2] Along this dimension, the theoretical literature has emphasised both the intertemporal nature of household decisions and the importance of life-cycle considerations in explaining external imbalances (Sachs 1981, Obstfeld 1982, Matsuyama 1983, Persson and Svensson 1985). The follow-up literature has established net foreign assets, the oil balance, income level, economic growth and demographic variables as robust covariates of the current account balance over the medium term (for a discussion, see Obstfeld and Rogoff 1996 and Lee et al 2008).

At an empirical level, a popular approach to the current account is provided by Chinn and Prasad [2003] and Lee et al [2008].[3] In addition, imbalances beyond the household sector

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[2]Mann [2002] splits the current account literature into three broad categories. The domestic perspective on the current account balance links the behavior of the current account to decisions on domestic savings and investment. The international trade perspective addresses the current account determination through the lens of cross-border trade in goods and services. The international capital markets perspective deals primarily with international flows of financial assets. The separating line, however, can be blurry.

[3]Phillips et al [2013] and IMF [2018] extend this empirical approach further and incorporate a wider set

have been shown to contain information about the current account (Allen 2019 and Dao and Maggi 2018). To the extent that the sectoral shifts are not fully internalised by households, sectoral imbalances may exhibit conditional individual association with the current account.

Building on this framework, I adopt a savings and investment approach to external imbalances, and link the euro area current account to a set of factors that have been identified as reliable regressors in the literature. The results suggest that corporate net lending and the fiscal balance are important covariates of the euro area current account. On the other hand, while demographic factors matter, their relevance is of second order.[4] Accordingly, I conclude that, in presence of non-Ricardian households and high corporate profits, a sectoral approach to external imbalances is needed for a better understanding of the euro area current account.

The rest of the paper is structured as follows. Section 2 presents the empirical approach. Section 3 describes the data. In Section 4 I discuss the empirical findings. Finally, Section 5 concludes.

Empirical Approach

From an accounting perspective, the current account (CA) is equal to the difference between domestic savings (S) and investments (I), $CA_t = S_t - I_t$. This difference, in turn, is reflected in a range of demographic and non-demographic variables, such that the euro area current account balance can be expressed as follows:

$$cay_t = \beta_0 + \boldsymbol{\beta_1}'\mathbf{DEM}_t + \boldsymbol{\beta_2}'\mathbf{NDEM}_t + \varepsilon_t \quad (1)$$

where cay is the euro area current account balance to GDP ratio. The vector **DEM**, capturing life-cycle factors, is composed of the natural logarithm of the old dependency ratio, the natural logarithm of the primary savers ratio, and the natural logarithm of life expectancy. All demographic variables are measured relative to the rest of the world.

The vector **NDEM** is composed of additional variables that have been identified as important covariates of the current account. In alternative specifications, the list of regressors includes the natural logarithm of relative per capita GDP, the relative growth rate, the start-of-period net foreign assets position as a share of GDP, as well as the oil balance to GDP ratio. Similar equations have been estimated by Chinn and Prasad [2003], Lee et al [2008], Phillips et al [2013] and IMF [2018].

The savings-investment imbalance can be broken down further into sectoral counterparts as follows:

$$CA_t = S_t - I_t = (S_t^H - I_t^H) + (S_t^G - I_t^G) + (S_t^C - I_t^C) \quad (2)$$

of regressors, including interaction terms.

[4] See Galstyan [2019] for a follow-up analysis of the euro area current account and the role of factor income.

where the expression in brackets captures net lending, H stands for households, G stands for the government sector and C stands for the corporate sector. Assuming that households internalise government savings decisions, the second component of savings-investment imbalance should be relatively less important.[5] Similarly, households, as holders of corporate equity in the standard representative agent model, are assumed to internalise the third term as well.

The empirical evidence, however, points to the relevance of fiscal balances and the increasing importance of corporate savings to external imbalances (Lee et al 2008, Allen 2019 and Dao and Maggi 2018). Accordingly, to capture the individual contributions of sovereigns and corporates that are not fully reflected in household decisions, in an alternative specification I further extend equation (1) and include the government fiscal balance to GDP ratio and net lending of nonfinancial corporations as a share of GDP as additional covariates of the euro area current account.

Due to a relatively high serial correlation of the residuals, all specifications are estimated by Prais-Winsten regressions.

Data

Quarterly data on the current account and net foreign assets, compiled according to the sixth edition of the Balance of Payments Manual, are taken from the IMF's Balance of Payments database. Data on oil exports and imports are from Eurostat's International Trade in Goods Statistics. I define the oil balance as net exports of petroleum, petroleum products and related materials, with the discrepancy between IMF BOP flows and directional flows from Eurostat distributed across oil and non-oil trade.

Demographic data for the euro area and the world are sourced from Eurostat and from the World Bank's World Development Indicator database. Since these data are only available at annual frequency, these are linearly interpolated to quarterly frequency. Life expectancy at birth is defined as the expected lifespan (in years) for a new-born child subject to current mortality conditions. The prime saver share and the old dependency ratio are respectively measured as the fraction of the population aged between 45 and 65 years and 65 years and older in the working age population between 30 and 65.

Finally, data on the composition of net lending are taken from Eurostat's quarterly sector accounts, while quarterly GDP series for the euro area are sourced from the ECB. Data for global GDP as well as population are from the World Bank's World Development Indicator database. These have been linearly interpolated to quarterly frequency as well. Seasonality in all of the quarterly series is removed using the U.S. Census Bureau's X-13 seasonal adjustment procedure. All demographic variables enter the regression analysis in Section

[5] For instance, higher public spending that is not matched with higher taxes is reflected in lower savings of the government sector. Households, recognising that higher spending will at some future point require higher taxes, raise private savings. Hence, these Ricardian consumers internalise shifts in public savings. The current account remains intact.

4 with euro area values measured relative to their global counterparts using population weights to construct the relative series. The sample period is from 1999Q1 to 2018Q2.

Empirical Findings

A conventional specification

Column (1) of Table 1 reports regression results with demographic variables only. The coefficient on the primary savers ratio is positive and statistically significant, highlighting the compositional shifts in the labor force as a factor shaping the current account (Dao and Jones 2018, IMF 2018). On the other hand, neither the old-dependency ratio nor life expectancy show a statistically significant association with the current account.[6]

Extending the specification, column (2) shows no significant association between the current account and the demographic variables. This is primarily an outcome of a high correlation between the demographic factors and the level as well as the rate of growth of relative GDP. Turning to the newly added regressors, the coefficient on the oil balance is positive and statistically significant, reflecting the terms-of-trade effect by which higher oil prices tend to reduce the current account of oil importing countries. Finally, in the current sample, none of the remaining covariates is associated with movements in the euro area current account balance.

Figure 3 plots the euro area current account to GDP ratio together with the fitted values from specification (1). The demographic factors alone seem to capture the medium term trend of the current account well. Additionally, the figure plots the fitted values from an unreported regressions of the current account on the level of relative per capita GDP and the oil balance only. These variables also show a high correlation with the medium-term trend of the current account. Importantly, while correlated, the age structure of populations is not a major driver of GDP.[7] Hence, the visual association of the euro area current account with demographic factors over the sample period seems to be somewhat misleading.

An extension

Figure 2 shows the four-quarter moving sum for the euro area sectoral net lending together with the current account balance. Before the Global Financial Crisis, nonfinancial corporations were net borrowers, with net lending reaching close to negative EUR 300 billion in 2008Q4. After 2013, the sector became a net lender, accumulating EUR 150 billion more assets than liabilities in the four quarters preceding 2018Q2. Interestingly, corporate net lending shows a clear positive correlation with the current account.

[6] In a panel setting, Dao and Jones [2018] find a negative association between the current account and the old-dependency ratio, while IMF [2018] find a negative but insignificant correlation between the two variables.

[7] See Higgins [1998] for an empirical link between the age structure and domestic investment.

Meanwhile, the general government deficit peaked at EUR 610 billion in 2010Q1 compared to just above EUR 60 billion in 2007. Post-crisis consolidation efforts by euro area governments led to a substantial reduction in sovereign net lending which, in turn, correlates positively with the euro area current account. Finally, the household sector and financial corporations were net lenders throughout the entire 1999-2018 period. Importantly, net lending of the household sector shows little co-movement with the euro area current account, especially in the post-crisis period.

The graphical evidence presented suggests that households do not fully internalise sovereign and corporate imbalances. Reflecting gross correlations, these patterns can be misleading. Accordingly, in column (3) of Table 1, I add the fiscal balance and corporate net lending as additional covariates to the list of existing regressors. As before, there is evidence that terms-of-trade shifts (as captured by the oil balance) show correlation with the current account. Turning to sectoral variables, coefficients on the fiscal balance and corporate net lending are positive and statistically significant. Accordingly, the result suggest that sectoral net lending is not fully internalised by households, and shows a significant correlation with the euro area current account balance.

Figure 4 plots the euro area current account to GDP ratio together with the fitted values from the specification (3). Unsurprisingly, the fit of the curve improves substantially relative to those of Figure 3. To see the contribution of the sectoral imbalance alone, the figure also show the fitted values from an unreported regressions of the current account on the fiscal balance and corporate net lending only (series labeled “cay* (NFCY & FBY)”). While the oil balance and sectoral net lending track the dynamics of the current account relatively well, these account for only 60 percent of the observed current account share in 2018Q2. Conditional on the previous results, the residual could be a reflection of demographic factors and/or relative income.

The same residual can also be a consequence of post-crisis structural shifts in corporate savings that are not captured in the discussed specifications. Hence, the series labeled “cay* (NFCY & FBY, threshold)” show the fitted values from an unreported regressions of the current account on the fiscal balance and corporate net lending, where the coefficient on the latter variable is asymmetric over 1999Q1-2012Q4 and 2013Q1-2018Q2 periods. This cutoff point is endogenously determined by a threshold regression and, importantly, it coincides with the beginning of the post-crisis build-up of corporate imbalances. The fit of the nonlinear regression now accounts for most of the observed current account. Hence, 60 percent (and more, allowing for a structural shift) of the current account to GDP ratio at the end of the sample period is accounted for by the corporate and government sector.

Finally, the last column of Table 1 shows the marginal R^2 values of individual regressors based on the specification in column (3). This statistic captures the explanatory power of a given variable in explaining the residual variation of the current account that is not explained by the rest of the regressors.[8] Based on this statistic, the main variables in explaining the residual variation of the current account are, in descending order, corporate net

[8] $R^2_m = (SSR_{restricted} - SSR_{unrestricted})/SSR_{restricted}$, where SSR stands for the residual sum of squares.

lending ($R^2_m = 0.67$) and the fiscal balance ($R^2_m = 0.46$). The marginal contribution of the remaining factors lags far behind. Hence, the empirical evidence presented highlights corporate and sovereign net lending as important covariates of the euro area current account.

Conclusions

A popular empirical framework for the current account balance links the behaviour of the current account to decisions on domestic savings and investment. Adopting this approach, I estimate a current account equation for the euro area. I find that corporate net lending and the fiscal balance are important covariates of the euro area current account, particularly after the Global Financial Crisis. Moreover, most of the of the current account to GDP ratio at the end of the sample period is accounted for by corporate net lending and the fiscal balance, particularly in presence of a post-crisis structural shift in corporate savings. On the other hand, while demographic factors matter also, their importance is of second order. These findings suggest that for a better understanding of the euro area current account a sectoral approach to external imbalances is required.

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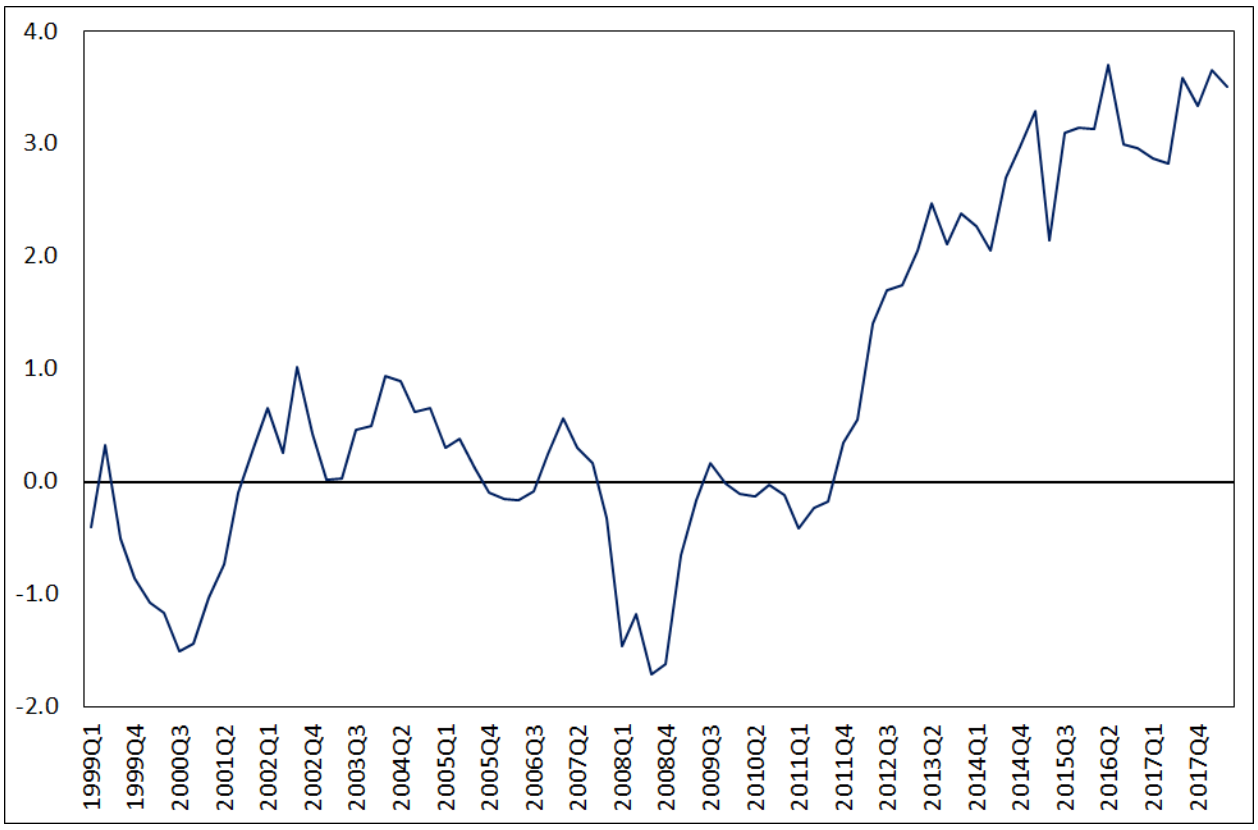
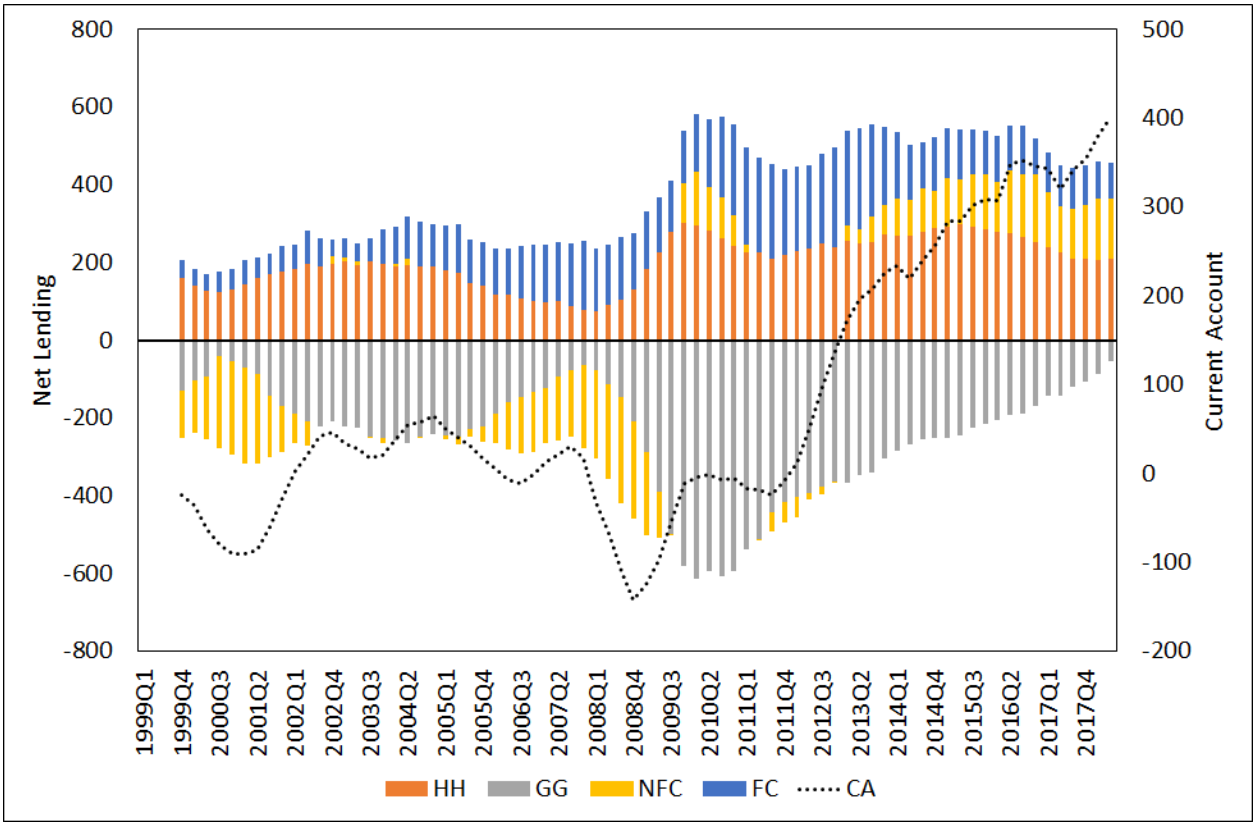
Figure 1: Euro Area Current Account



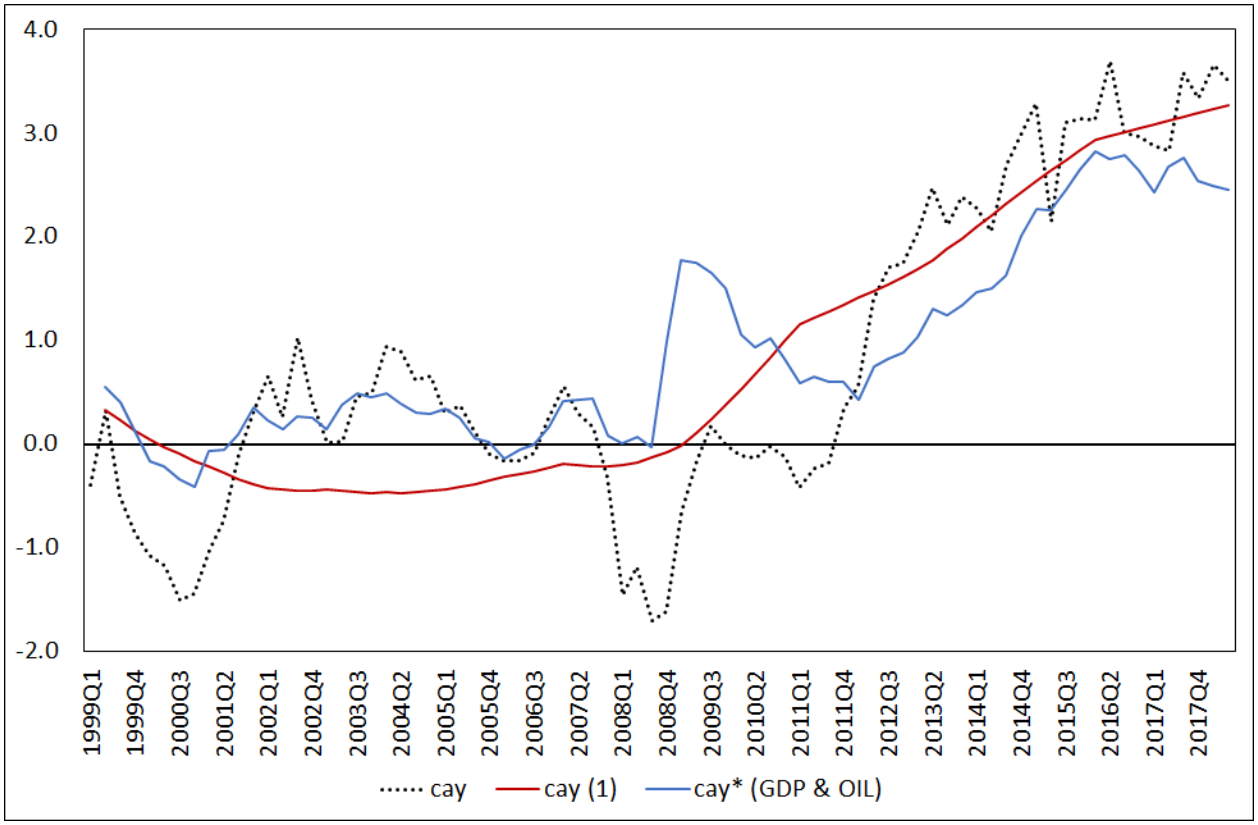
Note: The figure shows the euro area current account to GDP ratio (in per cent). Seasonality is removed using the U.S. Census Bureau's X-13 seasonal adjustment procedure.

Figure 2: Euro Area Net Lending



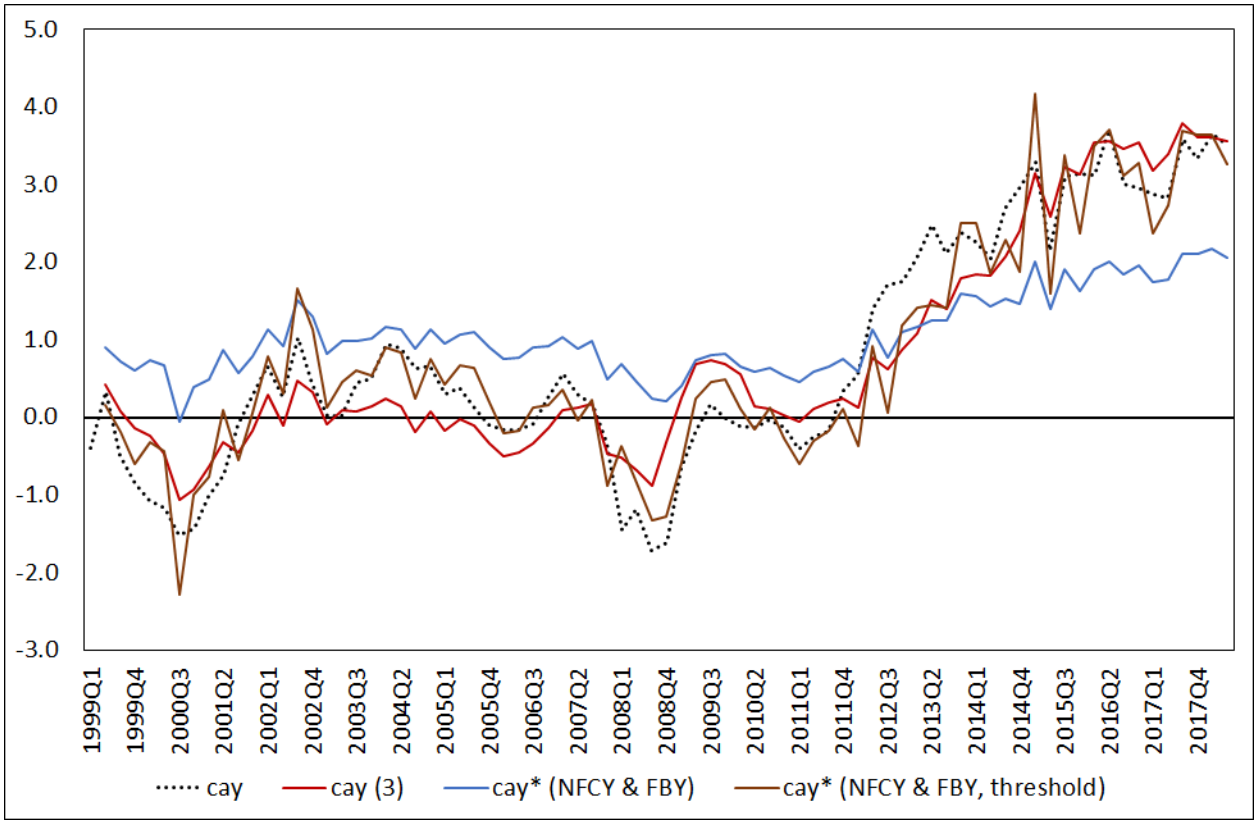
Note: The figure shows the euro area current account and net lending broken down by sectors. All components capture moving sums over four quarters in billions of euro. HH stands for households, GG stands for general government, NFC stands for nonfinancial corporations, while FC stands for financial corporations.

Figure 3: Projections of Euro Area Current Account I



Note: The figure shows actual as well as fitted values of the euro area current account to GDP ratio (in per cent) from the specification in column (1) of Table 1. The series labeled "cay* (GDP & OIL)" show the fitted values from an unreported regressions of the current account on the level of relative per capita GDP and the oil balance only.

Figure 4: Projections of Euro Area Current Account II



Note: The figure shows actual as well as fitted values of the euro area current account to GDP ratio (in per cent) from the specification in columns (3) of Table 1. The series labeled "cay* (NFCY & FBY)" show the fitted values from an unreported regressions of the current account on the fiscal balance and corporate net lending only. The series labeled "cay* (NFCY & FBY, threshold)" show the fitted values from an unreported regressions of the current account on the fiscal balance and corporate net lending, where the coefficient on the latter variable is asymmetric over 1999Q1-2012Q4 and 2013Q1-2018Q2 periods. The cutoff point is endogenously determined by a threshold regression.

Table 1: Covariates of the Current Account

	(1)	(2)	(3)	MR2
Rel. Old Dependency	0.167	0.088	-0.125	0.0243
	(0.166)	(0.238)	(0.211)	
Rel. Prim. Savers	1.244	0.442	0.066	0.0005
	(0.430)***	(0.505)	(0.434)	
Rel. Life Expectancy	-0.005	-0.197	-0.331	0.0239
	(0.712)	(0.640)	(0.542)	
Relative GDP per capita		-0.058	-0.087	0.0191
		(0.060)	(0.055)	
Relative Growth Rate		0.097	0.114	0.0117
		(0.058)	(0.054)**	
Net Foreign Assets (-1)		0.008	0.003	0.0005
		(0.010)	(0.009)	
Oil Balance		1.028	0.722	0.0125
		(0.231)***	(0.210)***	
Fiscal Balance			0.283	0.4642
			(0.072)***	
Net Lending of NFC			0.281	0.6646
			(0.053)***	
Constant	-0.345	-0.023	0.291	
	(0.270)	(0.375)	(0.341)	
Observations	77	77	77	
R-squared	0.217	0.409	0.619	
Durbin-Watson (original)	0.312	0.351	1.410	
Durbin-Watson (transformed)	1.944	2.185	2.184	

Note: The dependent variable in all regressions is the current account to GDP ratio of the euro area. Rel. Old Dependency is the natural logarithm of old-dependency ratio relative to the rest of the world; Rel. Primary Savers is the natural logarithm of primary savers ratio relative to the rest of the world; Rel. Life Expectancy is the natural logarithm of life expectancy relative to the rest of the world; Rel.Fertility is the natural logarithm of average fertility relative to the rest of the world; Rel. GDP per capita is the natural logarithm of per capita GDP relative to the rest of the world; Rel. Growth Rate is the growth rate differential between the euro area and the rest of the world; Oil Balance is the difference between oil exports and imports as a share of GDP; Fiscal Balance is the fiscal balance as a share of GDP; Net Lending of NFC is net lending by nonfinancial corporations as a share of GDP; Net Foreign Assets (-1) is the start-of-period net foreign asset position as a share of GDP. $R^2_m = (SSR_{restricted} - SSR_{unrestricted})/SSR_{restricted}$ captures the explanatory power of a given variable in explaining the residual variation of the current account that is not explained by the rest of the regressors in column (3). All specifications are estimated by Prais-Winsten regressions. ***, **, * indicate significance at 1, 5, and 10 per cent.