Table Appendix for the Paper "Does the Launch of the Euro Hinder the Current Account Adjustment of the Eurozone?"

Table S1. Nested Estimation without Data Over 1992-1993 and 2008-2015

$$z_{it} = d_{at}\left(\mu_{it,z}^{a} + \phi_{i,z}^{a}x_{it} + \sum_{j=1}^{p_1}\beta_{j,z}z_{it-j}\right) + d_{bt}\left(\mu_{it,z}^{b} + \phi_{i,z}^{b}x_{it} + \sum_{j=1}^{p_2}\eta_{j,z}z_{it-j}\right) + \varepsilon_{it,z},$$

where $\mu_{it,z}^{n} = \alpha_{i0,z}^{n} + \alpha_{i1,z}^{n}\sin(2\pi kt/T_n) + \alpha_{i2,z}^{n}\cos(2\pi kt/T_n) + \delta_{i,z}^{n}t$, for n=a, b,

$T_b = T - T_a$; $z_{it}=ca_{it}$, q_{it}, π_{it}; $i = 1,\ldots,N$, $t = 1,\ldots,T$.

	Pre-Euro	Euro	Diff
Real exchange rates ($z_{it}=q_{it}$), $\phi_{i,z}^{a} = \phi_{i,z}^{b} = 0$			
q_{it-1}	1.019** [0.95, 1.09]	0.417** [0.32, 0.51]	0.603** [0.49, 0.73]
q_{it-2}	-0.162** [-0.24, -0.09]	--- ---	--- ---
HL	4.959 [3.86, 6.65]	0.857 [0.73, 1.03]	4.101** [2.96, 5.77]
Inflation rates ($z_{it}=\pi_{it}$), $\phi_{i,z}^{n} = \delta_{i,z}^{n} = 0$, n=a, b			
π_{t-1}	0.890** [0.79, 0.99]	0.654** [0.55, 0.75]	0.236** [0.10, 0.38]
π_{t-2}	-0.094 [-0.19, 0.00]	--- ---	--- ---
HL	3.294 [2.48, 4.69]	1.678 [1.19, 2.45]	1.615** [0.54, 3.01]

Notes: Numbers in the table are CCEP estimates with bias adjustments. The 5%-95% confidence bands of CCEP estimates are reported in brackets, which are constructed by bootstrap through 2000 replications. The end of sample period for current accounts is 2011Q4, and hence removing 2008-2011 from the whole sample yields the same results as removing 2008-2015 from the whole sample. We therefore do not repeatedly report the estimation results of current accounts in Table 5. Two additional years of energy crises (1973 and 1979Q3-1980Q2) are removed when inflation rates are applied. Others are the same as those in Table 1.

Table S2. Nested Estimation without Data Over 1973-1978, 1992-1993 and 2008-2011

$$z_{it} = d_{at}\left(\mu_{it,z}^a + \phi_{i,z}^a x_{it} + \sum_{j=1}^{p_1}\beta_{j,z}z_{it-j}\right) + d_{bt}\left(\mu_{it,z}^b + \phi_{i,z}^b x_{it} + \sum_{j=1}^{p_2}\eta_{j,z}z_{it-j}\right) + \varepsilon_{it,z},$$

where $\mu_{it,z}^n = \alpha_{i0,z}^n + \alpha_{i1,z}^n \sin(2\pi kt/T_n) + \alpha_{i2,z}^n \cos(2\pi kt/T_n) + \delta_{i,z}^n t$, for n=a, b,

$T_b = T - T_a$; $z_{it}=ca_{it}$, q_{it}, π_{it}; $i = 1,...,N$, $t = 1,...,T$.

	Pre-Euro		Euro		Diff	
Current accounts ($z_{it}=ca_{it}$)						
ca_{it-1}	0.356**	[0.22, 0.49]	-0.238**	[-0.44, -0.03]	0.593**	[0.34, 0.83]
ca_{it-2}	-0.084	[-0.21, 0.06]	-0.082	[-0.27, 0.11]	-0.002	[-0.24, 0.23]
HL	0.776	[0.64, 0.98]	0.404	[0.35, 0.48]	0.372**	[0.22, 0.59]
Real exchange rates ($z_{it}=q_{it}$), $\phi_{i,z}^a = \phi_{i,z}^b = 0$						
q_{t-1}	0.798**	[0.74, 0.85]	0.654**	[0.50, 0.80]	0.144	[-0.01, 0.31]
q_{t-2}	---	---	0.011	[-0.13, 0.15]	---	---
HL	3.079	[2.31, 4.27]	1.713	[1.00, 2.70]	1.365*	[0.15, 2.71]
Inflation rates ($z_{it}=\pi_{it}$), $\phi_{i,z}^n = \delta_{i,z}^n = 0$, n=a, b						
π_{t-1}	0.891**	[0.79, 0.99]	0.706**	[0.61, 0.80]	0.185**	[0.05, 0.32]
π_{t-2}	-0.129**	[-0.23, -0.03]	---	---	---	---
HL	2.879	[2.24, 3.99]	1.990	[1.48, 3.05]	0.890	[-0.36, 2.13]

Notes: Numbers in the table are CCEP estimates with bias adjustments. The 5%-95% confidence bands of CCEP estimates are reported in brackets, which are constructed by bootstrap through 2000 replications. Two additional years of energy crises (1973 and 1979Q3-1980Q2) are removed when inflation rates are applied. Others are the same as those in Table 1.

Table S3. Nested Estimation with Different measures of Trade Openness and without Data Over 1992-1993 and 2008-2011

$$ca_{it} = d_{at}\left(\mu_{it,ca}^{a} + \phi_{i,ca}^{a}x_{it} + \sum_{j=1}^{p_1}\beta_{j,ca}ca_{it-j}\right) + d_{bt}\left(\mu_{it,ca}^{b} + \phi_{i,ca}^{b}x_{it} + \sum_{j=1}^{p_2}\eta_{j,ca}ca_{it-j}\right) + \varepsilon_{it,ca},$$

where $\mu_{it,ca}^{n} = \alpha_{i0,ca}^{n} + \alpha_{i1,ca}^{n}\sin(2\pi kt/T_n) + \alpha_{i2,ca}^{n}\cos(2\pi kt/T_n) + \delta_{i,ca}^{n}t$, for $n=a, b,$

$T_b = T - T_a$; $i = 1,\ldots,N$, $t = 1,\ldots,T$.

	Pre-Euro		Euro		Diff	

Frankel (2000)'s measure of trade openness: $x_{it} = \{1 - [(EX + IM)_{it}/2GDP_{it}]\}*100$.

ca_{it-1}	0.324**	[0.20, 0.44]	-0.239**	[-0.44, -0.04]	0.563**	[0.33, 0.80]
ca_{it-2}	-0.056	[-0.17, 0.06]	-0.077	[-0.27, 0.12]	0.021	[-0.20, 0.25]
HL	0.739	[0.63, 0.89]	0.403	[0.35, 0.48]	0.336**	[0.20, 0.50]

Li et al. (2004)'s measure of trade openness:.

$$x_{it} = (IM/GDP)_{it} - (1 - GDP_{it}/\sum_{i=1}^{k}GDP_{it})$$

ca_{it-1}	0.271**	[0.15, 0.39]	-0.256**	[-0.46, -0.06]	0.527**	[0.28, 0.76]
ca_{it-2}	-0.025	[-0.14, 0.09]	-0.079	[-0.27, 0.11]	0.054	[-0.18, 0.28]
HL	0.686	[0.59, 0.81]	0.398	[0.34, 0.47]	0.288**	[0.16, 0.43]

Squalli and Wilson (2011)'s measure of trade openness:

$$x_{it} = [(EX + IM)_{it}/[(1/n)\sum_{j=1}^{n}(EX + IM)_{jt}][(EX + IM)_{it}/GDP_{it}].$$

ca_{it-1}	0.364**	[0.24, 0.48]	-0.237**	[-0.44, -0.04]	0.601**	[0.37, 0.83]
ca_{it-2}	-0.052	[-0.17, 0.07]	-0.089	[-0.28, 0.10]	0.038	[-0.18, 0.26]
HL	0.786	[0.66, 0.96]	0.404	[0.35, 0.48]	0.382**	[0.23, 0.56]

Notes: *EX*, *IM* and *GDP* are exports, imports and gross domestic product, respectively. Numbers in the table are CCEP estimates with bias adjustments. The 5%-95% confidence bands of CCEP estimates are reported in brackets, which are constructed by bootstrap through 2000 replications. Two additional years of energy crises (1973 and 1979Q3-1980Q2) are removed when inflation rates are applied. Others are the same as those in Table 1.

Table S4. Nested Estimation with the Lag Order Being Determined by the Median of BICs and without Data Over 1992-1993 and 2008-2011

$$z_{it} = d_{at}\left(\mu_{it,z}^{a} + \phi_{i,z}^{a} x_{it} + \sum_{j=1}^{p_1} \beta_{j,z} z_{it-j}\right) + d_{bt}\left(\mu_{it,z}^{b} + \phi_{i,z}^{b} x_{it} + \sum_{j=1}^{p_2} \eta_{j,z} z_{it-j}\right) + \varepsilon_{it,z},$$

where $\mu_{it,z}^{n} = \alpha_{i0,z}^{n} + \alpha_{i1,z}^{n}\sin(2\pi kt/T_n) + \alpha_{i2,z}^{n}\cos(2\pi kt/T_n) + \delta_{i,z}^{n}t$, for n=a, b,

$T_b = T - T_a$; z_{it}=ca_{it}, q_{it}, π_{it}; $i = 1,...,N$, $t = 1,...,T$.

	Pre-Euro		Euro		Diff	
Current accounts (z_{it}=ca_{it})						
ca_{it-1}	0.326**	[0.21, 0.44]	-0.184	[-0.37, 0.01]	0.510**	[0.28, 0.72]
ca_{it-2}	-0.058	[-0.18, 0.06]	---	---	---	---
HL	0.742	[0.63, 0.89]	0.422	[0.37, 0.51]	0.320**	[0.18, 0.48]
Real exchange rates (z_{it}=q_{it}), $\phi_{i,z}^{a} = \phi_{i,z}^{b} = 0$						
q_{it-1}	1.019**	[0.95, 1.09]	0.654**	[0.54, 0.75]	0.365**	[0.24, 0.50]
q_{it-2}	-0.160**	[-0.23, -0.09]	---	---	---	---
HL	4.975	[3.88, 6.67]	1.678	[1.17, 2.47]	3.296**	[1.95, 5.07]
Inflation rates (z_{it}=π_{it}), $\phi_{i,z}^{n} = \delta_{i,z}^{n} = 0$, n=a, b						
π_{t-1}	0.892**	[0.80, 0.99]	0.697**	[0.61, 0.78]	0.194**	[0.07, 0.32]
π_{t-2}	-0.097	[-0.19, 0.00]	---	---	---	---
HL	3.294	[2.49, 4.67]	1. 936	[1.47, 2.78]	1.358*	[0.17, 2.90]

Notes: The lag orders of the model for the pre-euro and euro periods are determined by the median of BICs. Numbers in the table are CCEP estimates with bias adjustments. The 5%-95% confidence bands of CCEP estimates are reported in brackets, which are constructed by bootstrap through 2000 replications. Two additional years of energy crises (1973 and 1979Q3-1980Q2) are removed when inflation rates are applied. Others are the same as those in Table 1.

Table S5. Nested Estimation with the AIC Criterion and without Data Over 1992-1993 and 2008-2011

$$z_{it} = d_{at}\left(\mu_{it,z}^{a} + \phi_{i,z}^{a}x_{it} + \sum_{j=1}^{P_1}\beta_{j,z}z_{it-j}\right) + d_{bt}\left(\mu_{it,z}^{b} + \phi_{i,z}^{b}x_{it} + \sum_{j=1}^{P_2}\eta_{j,z}z_{it-j}\right) + \varepsilon_{it,z},$$

where $\mu_{it,z}^{n} = \alpha_{i0,z}^{n} + \alpha_{i1,z}^{n}\sin(2\pi kt/T_n) + \alpha_{i2,z}^{n}\cos(2\pi kt/T_n) + \delta_{i,z}^{n}t$, for $n=a, b$,

$T_b = T - T_a$; $z_{it}=ca_{it}$, q_{it}, π_{it}; $i = 1,\dots,N$, $t = 1,\dots,T$.

	Pre-Euro		Euro		Diff	
Current accounts ($z_{it}=ca_{it}$)						
ca_{it-1}	0.336**	[0.22, 0.46]	-0.236*	[-0.44, -0.03]	0.572**	[0.33, 0.81]
ca_{it-2}	-0.075	[-0.20, 0.06]	-0.080	[-0.28, 0.11]	-0.006	[-0.22, 0.25]
ca_{it-3}	0.092	[-0.03, 0.22]	---	---	---	---
HL	0.754	[0.64, 0.92]	0.405	[0.35, 0.49]	0.349**	[0.21, 0.52]
Real exchange rates ($z_{it}=q_{it}$), $\phi_{i,z}^{a} = \phi_{i,z}^{b} = 0$						
q_{it-1}	1.018**	[0.94, 1.10]	0.773**	[0.62, 0.92]	0.245**	[0.08, 0.41]
q_{it-2}	-0.149**	[-0.26, -0.04]	0.090	[-0.09, 0.25]	-0.239**	[-0.43, -0.03]
q_{it-3}	-0.015	[-0.09, 0.06]	-0.285**	[-0.40, -0.16]	0.269**	[0.13, 0.40]
HL	4.902	[3.82, 6.65]	2.506	[2.05, 3.13]	2.396**	[1.17, 4.15]
Inflation rates ($z_{it}=\pi_{it}$), $\phi_{i,z}^{n} = \delta_{i,z}^{n} = 0$, $n=a, b$						
π_{t-1}	0.883**	[0.79, 0.99]	0.820**	[0.70, 0.94]	0.063	[-0.09, 0.22]
π_{t-2}	0.056	[-0.08, 0.18]	-0.177**	[-0.29, -0.06]	0.233**	[0.05, 0.40]
π_{t-3}	-0.180**	[-0.29, -0.08]	---	---	---	---
HL	3.587	[2.85, 4.59]	1.987	[1.60, 2.61]	1.599**	[0.60, 2.60]

Notes: The optimal lag length is determined by the mean of AICs. Numbers in the table are CCEP estimates with bias adjustments. The 5%-95% confidence bands of CCEP estimates are reported in brackets, which are constructed by bootstrap through 2000 replications. Two additional years of energy crises (1973 and 1979Q3-1980Q2) are removed when inflation rates are applied. Others are the same as those in Table 1.

Table S6. Nested Estimation for Current Accounts for Core and Periphery Countries without Data Over 2008-2009

$$ca_{it} = \mu_{it,ca} + \phi_{i,ca} x_{it} + \sum_{j=1}^{p} \beta_{j,ca} ca_{it-j} + \varepsilon_{it,ca},$$

where $\mu_{it,ca} = \alpha_{i0,ca} + \alpha_{i1,ca} \sin(2\pi kt/T) + \alpha_{i2,ca} \cos(2\pi kt/T_n) + \delta_{i,ca} t$,

$i = 1,\ldots,N, \ t = 1,\ldots,T.$

	Core countries		Periphery Countries	
The model with nonlinear smooth shits in mean, $\delta_{i,ca} = 0$.				
ca_{it-1}	0.273**	[0.07, 0.47]	0.122	[-0.06, 0.30]
ca_{it-2}	0.070	[-0.13, 0.27]	---	---
HL	0.687	[0.54, 0.96]	0.569	[0.47, 0.72]
The model with a linear trend, $\alpha_{i1,ca} = \alpha_{i2,ca} = 0$.				
ca_{it-1}	0.239**	[0.04, 0.43]	0.271**	[0.06, 0.47]
ca_{it-2}	0.056	[-0.13, 0.25]	---	---
HL	0.657	[0.52, 0.88]	0.685	[0.53, 0.94]

Notes: The core group includes six eurozone countries having a current account surplus for most of the time after 1999: Austria, Belgium, Finland, France, Germany, the Netherlands. The periphery group includes 5 eurozone countries having a current account deficit for most of the time after 1999: Greece, Ireland, Italy, Portugal, and Spain. Numbers in the table are CCEP estimates with bias adjustments. The 5%-95% confidence bands of CCEP estimates are reported in brackets, which are constructed by bootstrap through 2000 replications. Others are the same as those in Table 1.

Table S7. Difference-in-Differences Estimation without Data Over 1992-1993 and 2008-2011

$$\Delta\tilde{z}^{j}_{ri,t} = \rho_1\tilde{z}^{j}_{ri,t-1} + \rho_2\Delta\tilde{z}^{j}_{ri,t-1} + \delta_1\tilde{z}^{j}_{ri,t-1}d_r + \delta_2\tilde{z}^{j}_{ri,t-1}d_j + \delta_3\tilde{z}^{j}_{ri,t-1}d_{rj}$$

$$+ \gamma_{11}\Delta\tilde{z}^{j}_{ri,t-1}d_r + \gamma_{21}\Delta\tilde{z}^{j}_{ri,t-1}d_j + \gamma_{31}\Delta\tilde{z}^{j}_{ri,t-1}d_{rj} + \varepsilon^{j}_{ri,t},$$

	$\tilde{z} = \widetilde{ca}$	$\tilde{z} = \tilde{q}$	$\tilde{z} = \tilde{\pi}$
(N_T, N_C)	(8,9)	(9,9)	(10,10)
ρ_1	-0.271** (0.090)	-0.166** (0.027)	-0.082* (0.050)
ρ_2	-0.114 (0.100)	0.324** (0.050)	0.621** (0.162)
δ_1	-0.155 (0.118)	0.021 (0.054)	0.113** (0.051)
δ_2	-0.261** (0.141)	-0.027 (0.061)	-0.032 (0.059)
δ_3	-0.435** (0.206)	-0.107 (0.124)	-0.130* (0.076)
γ_{11}	-0.036 (0.125)	-0.150** (0.069)	-0.351* (0.198)
γ_{21}	0.076 (0.131)	-0.086 (0.102)	-0.325* (0.181)
γ_{31}	0.122 (0.170)	-0.233* (0.131)	0.126 (0.221)
F	12.21 [0.00]	0.59 [0.44]	0.09 [0.76]

Notes: Numbers in parentheses (brackets) are standard errors (p-values). N_T and N_C are the number of countries in the treatment and control groups. $\tilde{z}_{i,t} = \widetilde{ca}_{it}$, $\tilde{q}_{it}$, $\tilde{\pi}_{it}$ is a filtered variable in which the regime-specific nonlinear smoothing mean and trend are filtered out. F is the F statistic testing the hypothesis that the sum of δ_1 and δ_3 is zero. To have comparable observations before and after the launch of the euro, the sample period is from 1985Q1 to 2011Q4 for current accounts and from 1983Q1 to 2015Q1 for real exchange rates. The years of currency and financial crises (1992-1993, 2008-2011) are removed. The treatment group includes 8 eurozone countries for current accounts, 9 countries for real exchange rates (Germany is excluded but Belgium and Ireland are included), and 10 countries for inflation rates (Germany is included). The control group for current accounts and real exchange rates includes 9 countries having flexible exchange rates after 1998: Australia, Canada, Denmark, Japan, Norway, Sweden, Switzerland, the United Kingdom, and the United States. The control group for inflation rates includes 10 countries (Korea is included). The subscript r indicates the exchange rate regime with $r=0$ for the flexible rate regime before 1999 and $r=1$ for the euro regime after 1998. d_r is the regime dummy variable, and it is equal to one if $r=1$ and zero otherwise. The superscript j indicates the country group with $j=0$ for the control group (non-eurozone countries) and $j=1$ for the treatment group (eurozone countries). d_j is the group dummy variable, and it is one if $j=1$ and zero otherwise. d_{rj} is the interaction of dummy variables, and it is one if $d_r = d_j = 1$ and zero otherwise. "**" and "*" indicate significance at the 5% and 10% levels, respectively.