Credit and Capital Markets, Volume 52, Issue 2,
Maurer (Online-Appendix)
Scientific Papers

Appendix: Time Series Properties of the Real Exchange Rates between the Member States of the European Monetary Union

7. Appendix Tables

Content

Appendix Table 1 – Panel Unit Root Tests of the first Differences of Consumer Price Indices

Test Specification					Results											
					1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test	H0	H1	Autoregression Parameter Rho	Lags / selection	Panels	Periods	P-value	Accepted Hypothesis	Panels	Periods	P-value	Accepted Hypothesis	Panels	Periods	P-value	Accepted Hypothesis
Breitung	All Panels contain unit roots	All Panels are stationary	Uniform ρ	12	12	155	0.000	H1	12	311	0.000	H1	12	222	0.000	H1
Herwartz	Panels contain unit roots	Panels are stationary	Panel-specific ρ	AIC	12	155	0.004	H1	12	311	0.090	**H0**	12	222	0.028	H1
Hadri	All panels are stationary	Some panels contain unit roots	-	12	12	155	0.022	**H1**	12	311	0.000	**H1**	12	222	0.000	**H1**

Legend Appendix Table 1: The significance level for the rejection of the H0 is 5%. All Panels as strongly balanced. Panel-specific linear trends are added. In all tests a correction for cross-sectional dependence of the panels is applied. A Bartlett Kernel with 12 lag is used to estimate the long-run variance in the Hadri tests.

Appendix Table 2 – Unit Root Tests of the Levels of Consumer Price Indices

Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Austria	Number observations	145	156	157	155	312	312	312	308	220	220	220	217
	Lags	11	11	9	1	9	9	12	4	12	12	10	3
	Test statistic: z(t)	0.84	-2.10	0.18	-5.92	-2.50	-2.22	0.5471	-3.88	-3.99	-3.00	0.1173	-4.79
	Structural break at obs.	-	-	-	133	-	-	-	417	-	-	-	614
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	Yes	No	No	No
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	**H1**	H0	**H0**	H0
Belgium	Number observations	144	156	157	153	312	312	312	308	220	220	220	218
	Lags	12	12	9	3	11	11	12	4	3	3	10	2
	Test statistic: z(t)	-0.54	-1.60	0.28	-3.29	-1.92	-2.06	0.58	-4.70	-2.12	-1.86	0.23	-4.31
	Structural break at obs.	-	-	-	133	-	-	-	259	-	-	-	612
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	No	No	No	No
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Finland	Number observations	151	156	157	153	312	312	312	312	220	220	220	217
	Lags	5	5	9	3	1	1	12	0	7	7	10	3
	Test statistic: z(t)	-3.22	-2.45	0.10	-3.67	-2.57	-2.66	0.59	-3.17	-2.17	-1.62	0.14	-2.83
	Structural break at obs.	-	-	-	49	-	-	-	378	-	-	-	608
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	Yes	No	No	No
	Accepted Hypothesis	H0	H0	**H0**	H0	H0	H0	H1	H0	H0	H0	**H0**	H0
France	Number observations	152	156	157	153	312	312	312	309	220	220	220	220
	Lags	4	4	9	0	8	8	12	4	8	8	10	0
	Test statistic: z(t)	-0.40	-0.19	0.31	-4.31	-1.10	-0.30	0.62	-5.75	0.14	-0.68	0.42	-4.49
	Structural break at obs.	-	-	-	67	-	-	-	241	-	-	-	626
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	No	No	No	No
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	**H1**	H0	H0	H1	H0
Ger-many	Number observations	150	156	157	155	312	312	312	309	220	220	220	219
	Lags	6	6	9	1	12	12	12	3	12	12	10	1
	Test statistic: z(t)	1.09	0.15	0.18	-3.67	-2.13	-2.06	0.41	-2.62	-2.45	-2.22	0.26	-3.94
	Structural break at obs.	-	-	-	114	-	-	-	239	-	-	-	626
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality effect	No	No	No	No	No	No	No	No	No	No	No	No
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Greece	Number observations	145	156	157	156	312	312	312	308	220	220	220	217
	Lags	11	11	9	0	12	12	12	4	11	11	10	3
	Test statistic: z(t)	-1.19	-3.22	0.157	-4.49	-0.09	1.95	0.453	-1.73	1.26	-0.38	0.437	-8.07
	Structural break at obs.	-	-	-	-	-	-	-	369	-	-	-	627
	5% significance level	-3.44	-3.44	0.146	-5.08	-3.43	-3.43	0.146	-5.08	-3.43	-3.43	0.146	-5.08
	10% significance level	-3.14	-3.14	0.119	-4.82	-3.13	-3.13	0.119	-4.82	-3.13	-3.13	0.119	-4.82
	Seasonality	No	No	No	No	No	No	No	No	No	No	No	No
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	**H1**

Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Ireland	Number observations	145	156	157	153	312	312	312	308	220	220	220	219
	Lags	11	11	9	3	10	10	12	4	8	8	10	1
	Test statistic: z(t)	0.40	0.88	0.36	-3.37	-1.51	-1.39	0.61	-5.68	-1.62	-1.64	0.47	-4.70
	Structural break at obs.	-	-	-	89	-	-	-	252	-	-	-	586
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-	0.12	-4.82	-3.13	-	0.12	-4.82	-3.13	-	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	No	No	No	Yes
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	**H1**	H0	H0	H1	H0
Italy	Number observations	153	156	157	154	312	312	312	309	220	220	220	218
	Lags	3	3	9	2	7	7	12	3	3	3	10	2
	Test statistic: z(t)	-1.11	-0.83	0.23	-1.88	-0.77	-0.39	0.62	-5.13	-0.34	0.13	0.38	-4.16
	Structural break at obs.	-	-	-	94	-	-	-	237	-	-	-	622
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	Yes	No	No	No	No
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	**H1**	H0	H0	H1	H0
Luxem-bourg	Number observations	155	156	157	156	312	312	312	309	220	220	220	217
	Lags	1	1	9	0	10	10	12	3	11	11	10	3
	Test statistic: z(t)	-1.03	-1.26	0.29	-3.63	-1.04	-1.02	0.57	-3.38	-0.06	-2.98	0.33	-5.13
	Structural break at obs.	-	-	-	114	-	-	-	269	-	-	-	626
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	No	No	No	No
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	**H1**
Nether-lands	Number observations	146	156	157	155	312	312	312	308	220	220	220	217
	Lags	10	10	9	1	10	10	12	4	10	10	10	3
	Test statistic: z(t)	-0.48	-2.44	0.337	-4.51	-2.93	-4.10	0.510	-5.10	-1.17	-2.04	0.238	-3.12
	Structural break at obs.	-	-	-	119	-	-	-	422	-	-	-	623
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	Yes	Yes	No	Yes	Yes	No	No	No
	Accepted Hypothesis	H0	H0	H1	H0	H0	**H1**	H1	**H1**	H0	H0	H1	H0
Portugal	Number observations	145	156	157	153	312	312	312	308	220	220	220	218
	Lags	11	11	9	3	10	10	12	4	12	12	10	2
	Test statistic: z(t)	0.35	-0.19	0.406	-3.26	1.05	1.37	0.605	-2.76	-2.16	-1.34	0.451	-2.89
	Structural break at obs.	-	-	-	88	-	-	-	276	-	-	-	555
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	No	No	No	No
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Spain	Number observations	153	156	157	155	312	312	312	312	220	220	220	217
	Lags	3	3	9	1	9	9	12	0	12	12	10	3
	Test statistic: z(t)	-2.04	-2.14	0.181	-4.03	-1.06	-0.68	0.610	-4.60	-1.11	-0.49	0.466	-2.22
	Structural break at obs.	-	-	-	54	-	-	-	205	-	-	-	567
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	No	No	No	No
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0

Legend Appendix Table 2: The significance level for the rejection of the H0 is 5%. The table displays the results for seasonally unadjusted monthly consumer price indices. If seasonally adjusted data lead to a different

accepted hypothesis, this is indicated with a "Yes" under "Seasonality". Seasonal adjustment is based on the Holt-Winters seasonal smoothing method. ADF: Augmended Dickey-Fuller Test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags chosen according to Akaike's information criterion (AIC). PP: Phillips–Perron test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags are Newey-West lags and chosen according to Akaike's information criterion (AIC). Critical values for the PP are the same as for the ADF. KPSS: Kwiatkowski-Phillips-Schmidt-Shin test for stationarity (H0 = stationary around linear trend, H1 = unit root). ZA: Zivot-Andrews Unit Root test allowing for a single break in intercept or trend (H0 = unit root, H1 stationarity with a break in the intercept or trend).

Appendix Table 3 – Unit Root Tests of the First Differences of Consumer Price Indices

Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Austria	Number observations	143	155	156	152	312	312	312	308	220	220	220	217
	Lags	12	12	14	3	12	12	23	4	12	12	8	3
	Test statistic: z(t)	-3.73	-12.05	0.11	-9.22	-2.57	-14.79	0.10	-8.97	-3.28	-15.47	0.043	-10.99
	Structural break at obs	-	-	-	31	-	-	-	238	-	-	-	612
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	No	No	No	No
	Accepted Hypothesis	H1	H1	H0	H1	**H0**	H1	H0	H1	**H0**	H1	H0	H1
Belgium	Number observations	144	155	156	153	312	312	312	308	220	220	220	220
	Lags	11	11	17	2	12	12	10	4	2	2	9	0
	Test statistic: z(t)	-2.13	-9.08	0.12	-10.33	-2.93	-14.60	0.12	-6.26	-7.39	-12.15	0.05	-12.44
	Structural break at obs	-	-	-	79	-	-	-	234	-	-	-	584
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	No	No	No	No
	Accepted Hypothesis	**H0**	H1	H0	H1	**H0**	H1	H0	H1	H1	H1	H0	H1
Finland	Number observations	151	155	156	152	312	312	312	312	220	220	220	218
	Lags	4	4	11	3	12	12	10	0	12	12	24	2
	Test statistic: z(t)	-3.79	-12.21	0.07	-5.08	-3.38	-16.84	0.13	-17.00	-2.64	-13.31	0.08	-10.51
	Structural break at obs	-	-	-	55	-	-	-	237	-	-	-	554
	5% significance level	-3.44	-2.89	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-2.58	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	Yes	No	No	No	No	No	No	No	No
	Accepted Hypothesis	H1	H1	H0	**H0**	**H0**	H1	H0	H1	**H0**	H1	H0	H1
France	Number observations	152	155	156	153	312	312	312	308	220	220	220	220
	Lags	3	3	10	2	12	12	12	3	12	12	9	3
	Test statistic: z(t)	-5.03	-11.03	0.12	-6.53	-3.59	-12.46	0.16	-6.57	-3.60	-17.03	0.06	-16.18
	Structural break at obs	-	-	-	46	-	-	-	281	-	-	-	583
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	Yes	No	No	No	No	No	No	No
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	**H1**	H1	H1	H1	H0	H1
Germany	Number observations	143	155	156	152	312	312	312	310	220	220	220	220
	Lags	12	12	8	3	12	12	10	2	12	12	6	0
	Test statistic: z(t)	-1.16	-8.87	0.18	-7.56	-2.14	-13.36	0.16	-8.73	-3.14	-21.77	0.06	-20.83
	Structural break at obs	-	-	-	90	-	-	-	347	-	-	-	584
	5% significance level	-3.44	-2.89	0.15	-5.08	-3.43	-2.88	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-2.58	0.12	-4.82	-3.13	-2.57	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality effect	No	No	No	No	No	No	Yes	No	No	No	No	No
	Accepted Hypothesis	**H0**	H1	**H1**	H1	**H0**	H1	**H1**	H1	**H0**	H1	H0	H1

Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Ireland	Number observations	145	155	156	152	312	312	312	308	220	220	220	220
	Lags	10	10	6	3	12	12	33	4	12	12	9	0
	Test statistic: z(t)	-3.03	-4.97	0.12	-5.60	-2.86	-22.96	0.09	-8.78	-3.29	-12.74	0.06	-13.18
	Structural break at obs	-	-	-	65	-	-	-	270	-	-	-	585
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-	0.12	-4.82	-3.13	-	0.12	-4.82	-3.13	-	0.12	-4.82
	Seasonality	Yes	No	No	No	Yes	No	No	No	No	No	No	No
	Accepted Hypothesis	**H0**	H1	H0	H1	**H0**	H1	H0	H1	**H0**	H1	H0	H1
Italy	Number observations	153	155	156	154	312	312	312	310	220	220	220	219
	Lags	2	2	8	1	12	12	10	2	12	12	10	1
	Test statistic: z(t)	-4.98	-7.30	0.18	-6.58	-4.09	-11.46	0.13	-8.40	-3.20	-13.67	0.09	-7.87
	Structural break at obs	-	-	-	60	-	-	-	279	-	-	-	645
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	Yes	No	No	No	No	No	No	No	Yes	No	No	No
	Accepted Hypothesis	H1	H1	**H1**	H1	H1	H1	H0	H1	**H0**	H1	H0	H1
Luxem-bourg	Number observations	155	155	156	155	312	312	312	310	220	220	220	217
	Lags	0	0	7	0	12	12	12	2	12	12	8	3
	Test statistic: z(t)	-13.25	-13.25	0.08	-13.76	-2.62	-14.55	0.08	-6.41	-4.80	-28.91	0.04	-10.65
	Structural break at obs	-	-	-	74	-	-	-	305	-	-	-	643
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No
	Accepted Hypothesis	H1	H1	H0	H1	**H0**	H1	H0	H1	H1	H1	H0	H1
Nether-lands	Number observations	143	155	156	155	312	312	312	308	220	220	220	218
	Lags	12	12	7	0	12	12	29	4	12	12	16	2
	Test statistic: z(t)	-3.66	-16.87	0.061	-15.03	-1.56	-13.29	0.191	-8.91	-2.67	-12.07	0.055	-16.02
	Structural break at obs	-	-	-	50	-	-	-	347	-	-	-	506
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	Yes	No	No	No	No	No
	Accepted Hypothesis	H1	H1	H0	H1	**H0**	H1	**H1**	H1	**H0**	H1	H0	H1
Portugal	Number observations	143	155	156	153	312	312	312	308	220	220	220	217
	Lags	12	12	12	2	12	12	19	4	12	12	14	3
	Test statistic: z(t)	-3.79	-14.84	0.053	-9.19	-4.38	-16.14	0.127	-10.95	-2.65	-12.76	0.038	-13.41
	Structural break at obs	-	-	-	132	-	-	-	304	-	-	-	603
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	No	No	No	No	No	No
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	H0	H1
Spain	Number observations	153	155	156	155	312	312	312	312	220	220	220	217
	Lags	2	2	6	0	12	12	36	0	12	12	15	3
	Test statistic: z(t)	-6.27	-9.34	0.140	-10.27	-3.95	-16.30	0.093	-17.49	-3.85	-11.99	0.053	-9.80
	Structural break at obs	-	-	-	64	-	-	-	213	-	-	-	637
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Seasonality	No	No	No	No	No	No	Yes	No	No	No	No	No
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1

Legend Appendix Table 3: The significance level for the rejection of the H0 is 5%. The table displays the results for seasonally unadjusted consumer price indices. If seasonally adjusted data lead to the opposite H0-decision, this is indicated with a "Yes" under "Seasonality". Seasonal adjustment is based on the Holt-Winters seasonal smoothing method. ADF: Augmended Dickey-Fuller Test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags chosen according to Akaike's information criterion (AIC). PP: Phillips–Perron test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags are Newey-West lags and chosen according to Akaike's information criterion (AIC). KPSS: Kwiatkowski-Phillips-Schmidt-Shin test for stationarity (H0 = stationary around linear trend, H1 = unit root). ZA: Zivot-Andrews Unit Root test allowing for a single break in intercept or trend (H0 = unit root, H1 stationarity with a break in the intercept or trend).

Appendix Table 4 – Panel Unit Root Tests of Nominal Exchange Rates Levels

Panel Unit Root Tests: Nominal Exchange Rate												
Test Specification					Results							
					1960:1 - 1972:12				1973:1 - 1998:12			
Test	H0	H1	Autoregression Parameter ρ	Lags / Selection	Panels	Periods	P-value	Accepted Hypothesis	Panels	Periods	P-value	Accepted Hypothesis
Breitung	Panels contain unit roots	Panels are stationary	Uniform ρ	12	65	156	1.000	H0	65	311	1.000	H0
Herwartz	Panels contain unit roots	Panels are stationary	Panel-specific ρ	AIC	65	156	0.155	H0	65	311	0.985	**H0**
Hadri	All panels are stationary	Some panels contain unit roots	-	12	65	156	0.000	H1	65	311	0.000	H1

Legend Appendix Table 4: The significance level for the rejection of the H0 is 5%. All Panels as strongly balanced. Panel-specific linear trends are allowed. In all tests a correction for cross-sectional dependence of the panels is applied. A Bartlett Kernel with 12 lag is used to estimate the long-run variance in the Hadri tests. The number of panels is 11 factorial minus 1 = 65 since Luxemburg and Belgium formed a monetary union from 1922 to 2002 (Union Économique Belgo-Luxembourgoise).

Appendix Table 5 – Panel Unit Root Tests of the First Differences of Nominal Exchange Rates

Test Specification					Results							
					1960:1 - 1972:12				1973:1 - 1998:12			
Test	H0	H1	Autoregression Parameter Rho	Lags / Selection	Panels	Periods	P-value	Accepted Hypothesis	Panels	Periods	P-value	Accepted Hypothesis
Breitung	All Panels contain unit roots	All Panels are stationary	Uniform ρ	12	65	155	0.000	H1	65	311	0.000	H1
Herwartz	Panels contain unit roots	Panels are stationary	Panel-specific ρ	AIC	65	155	0.020	H1	65	311	0.001	H1
Hadri	All panels are stationary	Some panels contain unit roots	-	12	65	155	0.448	H0	65	311	0.000	**H1**

Legend Appendix Table 5: The significance level for the rejection of the H0 is 5%. All Panels as strongly balanced. Estimations without linear trends. In all tests a correction for cross-sectional dependence of the panels is applied. A Bartlett Kernel with 12 lag is used to estimate the long-run variance in the Hadri tests. The number of panels is 11 factorial minus 1 = 65 since Luxemburg and Belgium formed a monetary union from 1922 to 2002 (Union Économique Belgo-Luxembourgoise).

Appendix Table 6 – Unit Root Tests of the Nominal Exchange Rate Levels

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Belgium / Austria	Number observations	143	156	157	155	312	312	312	308
	Lags	13	13	9	1	6	6	12	4
	Test statistic: z(t)	-3.63	-3.25	0.21	-6.04	-1.70	-1.79	0.33	-6.73
	Structural break at obs.	-	-	-	43	-	-	-	262
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	**H1**	H0	H1	**H1**	H0	H0	H1	**H1**
Finland / Austria	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	12	12	12	0
	Test statistic: z(t)	-1.80	-2.01	0.32	-9.10	-2.66	-2.10	0.32	-4.26
	Structural break at obs.	-	-	-	94	-	-	-	383
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
France / Austria	Number observations	153	156	157	155	312	312	312	312
	Lags	3	3	9		2	2	12	
	Test statistic: z(t)	-2.79	-2.85	0.29	-6.69	-3.71	-3.67	0.05	-4.40
	Structural break at obs.	-			116				219
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	**H1**	**H1**	**H0**	H0
Germany / Austria	Number observations	153	156	157	153	312	312	312	308
	Lags	3	3	9	3	11	11	12	4
	Test statistic: z(t)	-1.93	-2.25	0.28	-5.40	-1.50	-1.62	0.50	-3.75
	Structural break at obs.	-	-	-	117	-	-	-	289
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Greece / Austria	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	6	6	12	4
	Test statistic: z(t)	-1.94	-2.07	0.19	-4.26	-2.41	-3.00	0.27	-4.55
	Structural break at obs.	-	-	-		-	-	-	
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Ireland / Austria	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	12	12	12	4
	Test statistic: z(t)	-2.41	-2.57	0.10	-4.85	-2.46	-2.22	0.36	-3.97
	Structural break at obs.	-	-	-	95	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	**H0**	H0	H0	H0	H1	H0

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Italy / Austria	Number observations	153	156	157	155	312	312	312	308
	Lags	3	3	9	1	2	2	12	4
	Test statistic: z(t)	-1.70	-1.90	0.32	-4.77	-2.86	-2.88	0.25	-5.02
	Structural break at obs.	-	-	-	31	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Luxembourg / Austria	Number observations	144	156	157	155	312	312	312	309
	Lags	12	12	9	1	5	5	12	3
	Test statistic: z(t)	-3.99	-3.11	0.23	-6.11	-1.93	-2.04	0.42	-6.68
	Structural break at obs.	-	-	-	26	-	-	-	262
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	**H1**	H0	H1	**H1**	H0	H0	H1	**H1**
Netherlands / Austria	Number observations	143	156	157	154	312	312	312	309
	Lags	13	13	8	2	12	12	12	3
	Test statistic: z(t)	-1.26	-4.22	0.33	-7.31	0.32	-1.85	0.37	-3.84
	Structural break at obs.	-	-	-	106	-	-	-	289
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	**H1**	H1	**H1**	H0	H0	H1	H0
Portugal / Austria	Number observations	145	156	157	153	312	312	312	310
	Lags	11	11	9	3	2	2	12	2
	Test statistic: z(t)	-2.58	-1.94	0.40	-5.50	-2.04	-2.23	0.40	-3.40
	Structural break at obs.	-	-	-	65	-	-	-	345
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Spain / Austria	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	2	2	12	0
	Test statistic: z(t)	-1.71	-1.71	0.29	-5.91	-2.58	-2.61	0.17	-3.78
	Structural break at obs.	-	-	-	95	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Finland / Belgium	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	12	12	12	0
	Test statistic: z(t)	-1.87	-2.02	0.34	-9.89	-1.99	-1.66	0.39	-3.32
	Structural break at obs.	-	-	-	94	-	-	-	383
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
France / Belgium	Number observations	153	156	157	155	312	312	312	308
	Lags	3	3	9		11	11	12	
	Test statistic: z(t)	-2.38	-2.39	0.30	-5.24	-2.47	-2.47	0.24	-4.38
	Structural break at obs.	-			116				231
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Germany / Belgium	Number observations	153	156	157	155	312	312	312	308
	Lags	3	3	9	1	13	13	12	4
	Test statistic: z(t)	-1.92	-1.97	0.21	-4.01	-2.64	-2.48	0.12	-4.65
	Structural break at obs.	-	-	-	117	-	-	-	262
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	**H0**	H0
Greece / Belgium	Number observations	146	156	157	156	312	312	312	308
	Lags	10	10	9	0	6	6	12	4
	Test statistic: z(t)	-0.89	-1.77	0.24	-4.28	-2.61	-3.03	0.11	-3.53
	Structural break at obs.	-	-	-		-	-	-	
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	**H0**	H0
Ireland / Belgium	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	11	11	12	4
	Test statistic: z(t)	-2.19	-2.31	0.15	-4.65	-1.70	-1.52	0.39	-3.91
	Structural break at obs.	-	-	-	95	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Italy / Belgium	Number observations	150	156	157	154	312	312	312	308
	Lags	6	6	9	2	6	6	12	4
	Test statistic: z(t)	-1.43	-1.32	0.36	-4.16	-2.04	-2.13	0.32	-3.79
	Structural break at obs.	-	-	-	31	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Luxembourg / Belgium	Number observations	154	156	157	156	312	312	312	310
	Lags	2	2	9	0	4	4	12	2
	Test statistic: z(t)	-3.60	-4.01	0.16	-4.98	-3.10	-3.22	0.20	-3.47
	Structural break at obs.	-	-	-	74	-	-	-	313
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	**H1**	**H1**	H1	H0	H0	H0	H1	H0

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Netherlands / Belgium	Number observations	148	156	157	154	312	312	312	308
	Lags	8	8	9	2	2	2	12	4
	Test statistic: z(t)	-2.75	-3.74	0.14	-5.12	-2.32	-2.39	0.22	-5.23
	Structural break at obs.	-	-	-	50	-	-	-	262
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	**H1**	**H0**	**H1**	H0	H0	H1	**H1**
Portugal / Belgium	Number observations	145	156	157	153	312	312	312	308
	Lags	11	11	9	3	2	2	12	4
	Test statistic: z(t)	-1.18	-1.52	0.39	-4.30	-2.28	-2.43	0.26	-3.73
	Structural break at obs.	-	-	-	75	-	-	-	242
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Belgium	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	2	2	12	0
	Test statistic: z(t)	-1.48	-1.45	0.33	-7.35	-2.23	-2.24	0.31	-4.16
	Structural break at obs.	-	-	-	95	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
France / Finland	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9		2	2	12	
	Test statistic: z(t)	-2.28	-2.43	0.20	-7.45	-2.15	-2.04	0.34	-4.12
	Structural break at obs.	-			94				383
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Germany / Finland	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	12	12	12	0
	Test statistic: z(t)	-1.42	-1.60	0.37	-7.19	-2.41	-1.86	0.39	-3.95
	Structural break at obs.	-	-	-	94	-	-	-	383
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Greece / Finland	Number observations	154	156	157	156	312	312	312	309
	Lags	2	2	9	0	5	5	12	3
	Test statistic: z(t)	-1.95	-2.26	0.27	-10.8	-1.48	-1.75	0.45	-4.32
	Structural break at obs.	-	-	-		-	-	-	
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Ireland / Finland	Number observations	152	156	157	154	312	312	312	309
	Lags	4	4	9	2	12	12	12	3
	Test statistic: z(t)	-1.68	-2.47	0.39	-4.96	-3.62	-3.21	0.10	-3.87
	Structural break at obs.	-	-	-	94	-	-	-	320
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	**H1**	H0	**H0**	H0
Italy / Finland	Number observations	154	156	157	156	312	312	312	309
	Lags	2	2	9	0	5	5	12	3
	Test statistic: z(t)	-2.39	-2.68	0.25	-11.8	-4.12	-3.97	0.13	-4.14
	Structural break at obs.	-	-	-	94	-	-	-	208
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	**H1**	**H1**	**H0**	H0
Luxembourg / Finland	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	12	12	12	0
	Test statistic: z(t)	-1.78	-1.95	0.35	-9.60	-2.08	-1.70	0.41	-3.56
	Structural break at obs.	-	-	-	94	-	-	-	383
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Netherlands / Finland	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	12	12	12	0
	Test statistic: z(t)	-1.76	-2.01	0.35	-8.97	-2.43	-1.76	0.36	-3.98
	Structural break at obs.	-	-	-	94	-	-	-	383
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Portugal / Finland	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	4	4	12	4
	Test statistic: z(t)	-1.71	-1.63	0.37	-9.19	-1.33	-1.55	0.53	-3.83
	Structural break at obs.	-	-	-	94	-	-	-	379
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Spain / Finland	Number observations	152	156	157	155	312	312	312	309
	Lags	4	4	9	1	2	2	12	3
	Test statistic: z(t)	-3.25	-5.39	0.14	-4.63	-2.59	-2.62	0.20	-3.42
	Structural break at obs.	-	-	-	58	-	-	-	275
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	**H1**	**H0**	H0	H0	H0	H1	H0

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Germany / France	Number observations	151	156	157	153	312	312	312	311
	Lags	5	5	9	3	11	11	12	1
	Test statistic: z(t)	-1.95	-1.80	0.30	-8.01	-3.85	-3.09	0.28	-4.21
	Structural break at obs.	-	-	-	116	-	-	-	238
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	**H1**	H0	H1	H0
Greece / France	Number observations	148	156	157	156	312	312	312	312
	Lags	8	8	9	0	2	2	12	0
	Test statistic: z(t)	-3.13	-2.56	0.12	-5.26	-3.11	-3.31	0.27	-5.34
	Structural break at obs.	-	-	-		-	-	-	
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	**H0**	**H1**	H0	H0	H1	**H1**
Ireland / France	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	12	12	12	4
	Test statistic: z(t)	-2.10	-2.04	0.13	-3.76	-2.07	-2.00	0.43	-4.25
	Structural break at obs.	-	-	-	95	-	-	-	251
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	**H0**	H0	H0	H0	H1	H0
Italy / France	Number observations	154	156	157	154	312	312	312	309
	Lags	2	2	9	2	2	2	12	3
	Test statistic: z(t)	-3.40	-3.11	0.06	-5.65	-2.39	-2.52	0.30	-4.81
	Structural break at obs.	-	-	-	116	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	**H0**	**H1**	H0	H0	H1	H0
Luxembourg / France	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	11	11	12	4
	Test statistic: z(t)	-2.15	-2.18	0.32	-5.65	-2.48	-2.45	0.30	-4.33
	Structural break at obs.	-	-	-	116	-	-	-	231
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Netherlands / France	Number observations	154	156	157	156	312	312	312	311
	Lags	2	2	9	0	9	9	12	1
	Test statistic: z(t)	-2.37	-2.61	0.35	-5.93	-3.64	-3.40	0.13	-4.70
	Structural break at obs.	-	-	-	116	-	-	-	219
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	**H1**	H0	**H0**	H0

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Portugal / France	Number observations	153	156	157	153	312	312	312	312
	Lags	3	3	9	3	2	2	12	0
	Test statistic: z(t)	-1.71	-1.77	0.39	-3.62	-2.13	-2.25	0.43	-4.50
	Structural break at obs.	-	-	-	116	-	-	-	205
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Spain / France	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	3	3	12	0
	Test statistic: z(t)	-1.99	-2.03	0.16	-5.71	-2.59	-2.81	0.22	-4.51
	Structural break at obs.	-	-	-	95	-	-	-	343
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Greece / Germany	Number observations	145	156	157	156	312	312	312	308
	Lags	11	11	9	0	6	6	11	4
	Test statistic: z(t)	-0.57	-0.87	0.29	-3.78	-3.04	-3.78	0.13	-4.63
	Structural break at obs.	-	-	-		-	-	-	
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	**H1**	**H0**	H0
Ireland / Germany	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	12	12	12	4
	Test statistic: z(t)	-2.25	-2.36	0.24	-5.19	-2.01	-1.72	0.47	-4.09
	Structural break at obs.	-	-	-	95	-	-	-	243
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Italy / Germany	Number observations	152	156	157	155	312	312	312	308
	Lags	4	4	9	1	2	2	12	4
	Test statistic: z(t)	-0.98	-0.86	0.36	-3.49	-2.25	-2.25	0.37	-5.23
	Structural break at obs.	-	-	-	84	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	**H1**
Luxembourg / Germany	Number observations	150	156	157	155	312	312	312	308
	Lags	6	6	9	1	3	3	12	4
	Test statistic: z(t)	-1.90	-2.23	0.19	-4.13	-2.58	-2.35	0.12	-5.26
	Structural break at obs.	-	-	-	117	-	-	-	262
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	**H0**	**H1**

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Netherlands / Germany	Number observations	154	156	157	156	312	312	312	309
	Lags	2	2	9	0	8	8	12	3
	Test statistic: z(t)	-2.91	-3.00	0.17	-5.48	-2.23	-2.50	0.34	-4.61
	Structural break at obs.	-	-	-	117	-	-	-	208
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Portugal / Germany	Number observations	154	156	157	153	312	312	312	310
	Lags	2	2	9	3	2	2	12	2
	Test statistic: z(t)	-3.20	-2.71	0.27	-4.27	-2.41	-2.62	0.27	-3.41
	Structural break at obs.	-	-	-	91	-	-	-	210
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Germany	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	2	2	12	0
	Test statistic: z(t)	-1.33	-1.27	0.34	-4.46	-2.17	-2.22	0.30	-4.22
	Structural break at obs.	-	-	-	95	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Ireland / Greece	Number observations	148	156	157	153	312	312	312	308
	Lags	8	8	9	3	6	6	12	4
	Test statistic: z(t)	-1.93	-2.03	0.17	-6.44	-1.25	-1.55	0.54	-6.35
	Structural break at obs.	-	-	-	95	-	-	-	307
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	**H1**
Italy / Greece	Number observations	148	156	157	156	312	312	312	308
	Lags	8	8	9	0	8	8	12	4
	Test statistic: z(t)	-1.91	-2.21	0.18	-3.75	-1.74	-1.99	0.42	-4.92
	Structural break at obs.	-	-	-	70	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Luxembourg / Greece	Number observations	146	156	157	156	312	312	312	308
	Lags	10	10	9	0	2	2	12	4
	Test statistic: z(t)	-0.95	-1.55	0.25	-4.03	-3.24	-3.35	0.09	-3.79
	Structural break at obs.	-	-	-	123	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	**H0**	H0

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Netherlands / Greece	Number observations	153	156	157	156	312	312	312	308
	Lags	3	3	9	0	6	6	12	4
	Test statistic: z(t)	-1.25	-1.78	0.26	-4.84	-2.88	-3.54	0.19	-3.86
	Structural break at obs.	-	-	-	123	-	-	-	307
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	**H1**	H1	H0
Portugal / Greece	Number observations	144	156	157	153	312	312	312	308
	Lags	12	12	9	3	6	6	12	4
	Test statistic: z(t)	-0.48	-0.95	0.38	-3.99	-2.41	-3.47	0.31	-4.05
	Structural break at obs.	-	-	-	76	-	-	-	301
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	**H1**	H1	H0
Spain / Greece	Number observations	151	156	157	153	312	312	312	310
	Lags	5	5	9	3	4	4	12	2
	Test statistic: z(t)	-1.36	-1.60	0.22	-6.00	-1.63	-2.07	0.36	-3.90
	Structural break at obs.	-	-	-	95	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Italy / Ireland	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	9	9	12	4
	Test statistic: z(t)	-2.09	-2.09	0.16	-4.94	-2.30	-3.33	0.26	-4.83
	Structural break at obs.	-	-	-	95	-	-	-	319
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Luxembourg / Ireland	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	11	11	12	4
	Test statistic: z(t)	-2.28	-2.38	0.15	-4.63	-1.67	-1.48	0.42	-3.88
	Structural break at obs.	-	-	-	95	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Netherlands / Ireland	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	11	11	12	4
	Test statistic: z(t)	-2.29	-2.68	0.15	-5.43	-1.83	-1.80	0.40	-3.89
	Structural break at obs.	-	-	-	95	-	-	-	243
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Portugal / Ireland	Number observations	154	156	157	156	312	312	312	308
	Lags	2	2	9	0	11	11	12	4
	Test statistic: z(t)	-2.01	-1.90	0.30	-5.40	-1.05	-1.18	0.55	-4.52
	Structural break at obs.	-	-	-	95	-	-	-	270
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Spain / Ireland	Number observations	143	156	157	153	312	312	312	308
	Lags	13	13	9	3	11	11	12	4
	Test statistic: z(t)	-1.70	-1.72	0.30	-3.49	-2.14	-2.58	0.22	-3.73
	Structural break at obs.	-	-	-	54	-	-	-	331
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Luxembourg / Italy	Number observations	153	156	157	156	312	312	312	308
	Lags	3	3	9	0	6	6	12	4
	Test statistic: z(t)	-1.45	-1.21	0.37	-3.61	-1.89	-2.03	0.34	-3.79
	Structural break at obs.	-	-	-	34	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Netherlands / Italy	Number observations	153	156	157	156	312	312	312	309
	Lags	3	3	9	0	5	5	12	3
	Test statistic: z(t)	-1.41	-1.65	0.36	-3.82	-2.38	-2.41	0.30	-4.94
	Structural break at obs.	-	-	-	36	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Portugal / Italy	Number observations	154	156	157	153	312	312	312	308
	Lags	2	2	9	3	11	11	12	4
	Test statistic: z(t)	-1.48	-1.23	0.40	-3.96	-1.86	-1.73	0.50	-4.14
	Structural break at obs.	-	-	-	52	-	-	-	270
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Italy	Number observations	154	156	157	156	312	312	312	309
	Lags	2	2	9	0	3	3	12	3
	Test statistic: z(t)	-1.72	-1.79	0.20	-6.28	-3.38	-3.42	0.17	-4.23
	Structural break at obs.	-	-	-	95	-	-	-	273
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0

Unit Root Tests of the Nominal Exchange Rate									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Netherlands / Luxembourg	Number observations	143	156	157	154	312	312	312	312
	Lags	13	13	9	2	2	2	12	0
	Test statistic: z(t)	-4.16	-4.19	0.08	-5.63	-2.66	-2.71	0.33	-4.83
	Structural break at obs.	-	-	-	40	-	-	-	262
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	**H1**	**H1**	**H0**	**H1**	H0	H0	H1	H0
Portugal / Luxembourg	Number observations	151	156	157	153	312	312	312	312
	Lags	5	5	9	3	2	2	12	0
	Test statistic: z(t)	-1.60	-1.93	0.38	-3.95	-2.32	-2.48	0.25	-4.21
	Structural break at obs.	-	-	-	65	-	-	-	206
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Luxembourg	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	2	2	12	0
	Test statistic: z(t)	-1.43	-1.43	0.34	-7.31	-2.20	-2.24	0.33	-4.28
	Structural break at obs.	-	-	-	95	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Portugal / Netherlands	Number observations	145	156	157	153	312	312	312	310
	Lags	11	11	9	3	2	2	12	2
	Test statistic: z(t)	-2.85	-2.26	0.38	-4.87	-2.18	-2.35	0.35	-3.38
	Structural break at obs.	-	-	-	65	-	-	-	211
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Netherlands	Number observations	154	156	157	156	312	312	312	312
	Lags	2	2	9	0	2	2	12	0
	Test statistic: z(t)	-1.46	-1.58	0.32	-5.66	-2.04	-2.17	0.24	-4.00
	Structural break at obs.	-	-	-	95	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0
Spain / Portugal	Number observations	154	156	157	156	312	312	312	310
	Lags	2	2	9	0	11	11	12	2
	Test statistic: z(t)	-1.43	-1.27	0.36	-5.78	-1.38	-1.65	0.48	-4.51
	Structural break at obs.	-	-	-	95	-	-	-	221
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0

Legend Appendix Table 6: The significance level for the rejection of the H0 is 5%. The table displays the results for seasonally unadjusted monthly nominal exchange rates. ADF: Augmended Dickey-Fuller Test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags chosen according to Akaike's information criterion (AIC). PP: Phillips–Perron test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags are Newey-West lags and chosen according to Akaike's information criterion (AIC). Critical values for the PP are the same as for the ADF. KPSS: Kwiatkowski-Phillips-Schmidt-Shin test for stationarity (H0 = stationary around linear trend, H1 = unit root). ZA: Zivot-Andrews Unit Root test allowing for a single break in intercept or trend (H0 = unit root, H1 stationarity with a break in the intercept or trend).

Appendix Table 7 – Unit Root Tests of the First Differeces of Nominal Exchange Rate Levels

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Belgium / Austria	Number observations	146	155	156	152	312	312	312	309
	Lags	9	9	43	3	5	5	23	3
	Test statistic: z(t)	-6.15	-10.87	0.14	-8.76	-7.42	-15.99	0.06	-8.91
	Structural break at obs.	-	-	-	31	-	-	-	271
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Finland / Austria	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	8	0	11	11	3	0
	Test statistic: z(t)	-9.84	-13.43	0.05	-13.68	-4.08	-16.93	0.06	-17.25
	Structural break at obs.	-	-	-	94	-	-	-	377
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
France / Austria	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	25		1	1	57	
	Test statistic: z(t)	-8.08	-10.95	0.07	-11.19	-12.41	-16.68	0.09	-10.02
	Structural break at obs.	-			115				251
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Germany / Austria	Number observations	151	155	156	153	312	312	312	309
	Lags	4	4	18	2	13	13	10	3
	Test statistic: z(t)	-6.02	-10.51	0.07	-9.10	-4.53	-19.37	0.03	-11.01
	Structural break at obs.	-	-	-	116	-	-	-	235
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Greece / Austria	Number observations	142	155	156	155	312	312	312	309
	Lags	13	13	12	0	5	5	17	3
	Test statistic: z(t)	-2.80	-12.41	0.09	-12.37	-8.48	-16.74	0.05	-12.13
	Structural break at obs.	-	-	-		-	-	-	
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H1	H0	H1	H1	H1	H0	H1
Ireland / Austria	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	12	0	13	13	5	3
	Test statistic: z(t)	-9.29	-11.85	0.05	-12.13	-4.73	-17.68	0.12	-11.09
	Structural break at obs.	-	-	-	105	-	-	-	262
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Italy / Austria	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	18	0	1	1	13	3
	Test statistic: z(t)	-8.95	-10.93	0.07	-11.25	-12.63	-17.00	0.11	-10.14
	Structural break at obs.	-	-	-	31	-	-	-	390
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Luxembourg / Austria	Number observations	142	155	156	152	312	312	312	310
	Lags	13	13	31	3	4	4	19	2
	Test statistic: z(t)	-4.04	-10.30	0.12	-8.42	-8.22	-15.81	0.05	-12.02
	Structural break at obs.	-	-	-	31	-	-	-	210
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Netherlands / Austria	Number observations	143	155	156	152	312	312	312	308
	Lags	12	12	21	3	13	13	12	4
	Test statistic: z(t)	-5.98	-14.76	0.09	-8.53	-5.30	-22.89	0.14	-11.52
	Structural break at obs.	-	-	-	32	-	-	-	233
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Austria	Number observations	142	155	156	153	312	312	312	311
	Lags	13	13	14	2	3	3	12	1
	Test statistic: z(t)	-3.28	-12.34	0.07	-10.01	-10.09	-17.97	0.04	-14.33
	Structural break at obs.	-	-	-	67	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	**H0**	H1	H0	H1	H1	H1	H0	H1
Spain / Austria	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	14	0	1	1	8	0
	Test statistic: z(t)	-8.56	-11.25	0.09	-11.65	-12.54	-18.68	0.04	-18.95
	Structural break at obs.	-	-	-	95	-	-	-	390
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Finland / Belgium	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	9	0	11	11	10	0
	Test statistic: z(t)	-9.56	-13.32	0.05	-13.59	-4.23	-16.62	0.06	-16.87
	Structural break at obs.	-	-	-	94	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
France / Belgium	Number observations	153	155	156	155	312	312	312	309
	Lags	2	2	2		10	10	7	
	Test statistic: z(t)	-7.12	-10.70	0.04	-11.15	-5.15	-15.70	0.06	-10.98
	Structural break at obs.	-			116				219
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Germany / Belgium	Number observations	153	155	156	153	312	312	312	309
	Lags	2	2	4	2	12	12	10	3
	Test statistic: z(t)	-7.11	-9.47	0.09	-8.02	-4.94	-14.74	0.05	-7.63
	Structural break at obs.	-	-	-	116	-	-	-	277
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Greece / Belgium	Number observations	146	155	156	153	312	312	312	309
	Lags	9	9	13	2	5	5	19	3
	Test statistic: z(t)	-4.91	-12.56	0.05	-8.40	-8.13	-16.82	0.05	-11.07
	Structural break at obs.	-	-	-		-	-	-	
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Ireland / Belgium	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	16	0	13	13	46	3
	Test statistic: z(t)	-8.87	-11.62	0.06	-12.14	-4.25	-18.12	0.09	-11.10
	Structural break at obs.	-	-	-	97	-	-	-	271
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Italy / Belgium	Number observations	150	155	156	154	312	312	312	309
	Lags	5	5	5	1	5	5	16	3
	Test statistic: z(t)	-4.39	-9.07	0.04	-9.04	-7.56	-17.46	0.14	-9.65
	Structural break at obs.	-	-	-	41	-	-	-	390
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Luxembourg / Belgium	Number observations	152	155	156	152	312	312	312	311
	Lags	3	3	10	3	3	3	17	1
	Test statistic: z(t)	-7.77	-12.71	0.05	-8.25	-9.41	-15.30	0.09	-13.01
	Structural break at obs.	-	-	-	120	-	-	-	289
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Netherlands / Belgium	Number observations	142	155	156	152	312	312	312	312
	Lags	13	13	8	3	1	1	13	0
	Test statistic: z(t)	-4.18	-15.08	0.04	-8.05	-12.98	-17.52	0.05	-17.91
	Structural break at obs.	-	-	-	28	-	-	-	268
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Belgium	Number observations	145	155	156	153	312	312	312	309
	Lags	10	10	12	2	1	1	12	3
	Structural break at obs.	-	-	-	80	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Belgium	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	4	0	1	1	11	0
	Test statistic: z(t)	-8.58	-11.53	0.08	-12.13	-12.39	-18.45	0.05	-18.72
	Structural break at obs.	-	-	-	95	-	-	-	390
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
France / Finland	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	8		1	1	8	
	Test statistic: z(t)	-9.31	-12.98	0.05	-13.19	-11.45	-16.74	0.04	-17.02
	Structural break at obs.	-			94				377
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Germany / Finland	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	9	0	11	11	9	0
	Test statistic: z(t)	-9.73	-13.25	0.06	-13.72	-3.99	-16.24	0.05	-16.43
	Structural break at obs.	-	-	-	94	-	-	-	377
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Greece / Finland	Number observations	152	155	156	152	312	312	312	310
	Lags	3	3	7	3	4	4	17	2
	Test statistic: z(t)	-7.58	-14.05	0.08	-8.60	-9.21	-16.56	0.05	-11.99
	Structural break at obs.	-	-	-		-	-	-	
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Ireland / Finland	Number observations	152	155	156	154	312	312	312	310
	Lags	3	3	6	1	13	13	24	2
	Test statistic: z(t)	-7.50	-20.02	0.05	-12.77	-3.84	-18.10	0.06	-9.72
	Structural break at obs.	-	-	-	94	-	-	-	277
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Italy / Finland	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	8	0	2	2	12	0
	Test statistic: z(t)	-9.78	-13.88	0.04	-14.15	-8.87	-15.88	0.07	-16.21
	Structural break at obs.	-	-	-	94	-	-	-	223
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Luxembourg / Finland	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	7	0	11	11	11	0
	Test statistic: z(t)	-9.66	-13.37	0.04	-13.66	-4.09	-16.53	0.06	-16.84
	Structural break at obs.	-	-	-	94	-	-	-	377
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Netherlands / Finland	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	9	0	1	1	10	0
	Test statistic: z(t)	-9.52	-13.56	0.05	-13.86	-11.83	-17.03	0.06	-17.50
	Structural break at obs.	-	-	-	94	-	-	-	377
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Finland	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	12	0	13	13	15	3
	Test statistic: z(t)	-8.73	-12.42	0.07	-12.76	-4.24	-17.08	0.07	-11.08
	Structural break at obs.	-	-	-	91	-	-	-	400
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Finland	Number observations	152	155	156	154	312	312	312	310
	Lags	3	3	6	1	1	1	18	2
	Test statistic: z(t)	-7.83	-19.51	0.03	-12.39	-12.62	-16.62	0.04	-11.91
	Structural break at obs.	-	-	-	96	-	-	-	400
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Germany / France	Number observations	151	155	156	153	312	312	312	308
	Lags	4	4	6	2	10	10	9	4
	Test statistic: z(t)	-4.98	-9.81	0.04	-8.10	-4.59	-15.95	0.03	-9.17
	Structural break at obs.	-	-	-	116	-	-	-	251
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Greece / France	Number observations	144	155	156	155	312	312	312	309
	Lags	11	11	10	0	1	1	6	3
	Test statistic: z(t)	-4.08	-13.41	0.07	-13.69	-13.47	-17.85	0.02	-9.63
	Structural break at obs.	-	-	-		-	-	-	
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Ireland / France	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	6	0	13	13	12	3
	Test statistic: z(t)	-8.30	-11.57	0.06	-12.26	-4.94	-19.57	0.09	-9.97
	Structural break at obs.	-	-	-	116	-	-	-	273
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Italy / France	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	1	0	1	1	18	0
	Test statistic: z(t)	-7.70	-11.66	0.04	-12.31	-13.75	-18.83	0.12	-19.31
	Structural break at obs.	-	-	-	116	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Luxembourg / France	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	7	0	10	10	7	3
	Test statistic: z(t)	-8.41	-11.47	0.04	-12.25	-5.12	-15.27	0.05	-10.55
	Structural break at obs.	-	-	-	116	-	-	-	219
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Netherlands / France	Number observations	154	155	156	152	312	312	312	308
	Lags	1	1	9	3	8	8	11	4
	Test statistic: z(t)	-8.57	-12.68	0.04	-7.47	-5.49	-15.89	0.04	-9.36
	Structural break at obs.	-	-	-	116	-	-	-	219
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Portugal / France	Number observations	153	155	156	153	312	312	312	309
	Lags	2	2	16	2	1	1	13	3
	Test statistic: z(t)	-8.32	-11.02	0.07	-8.79	-13.30	-17.46	0.05	-10.45
	Structural break at obs.	-	-	-	116	-	-	-	225
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Spain / France	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	87	0	2	2	10	0
	Test statistic: z(t)	-8.73	-11.44	0.31	-11.81	-10.94	-19.44	0.03	-19.61
	Structural break at obs.	-	-	-	89	-	-	-	390
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	**H1**	H1	H1	H1	H0	H1
Greece / Germany	Number observations	148	155	156	155	312	312	312	309
	Lags	7	7	13	0	5	5	18	3
	Test statistic: z(t)	-3.99	-12.32	0.10	-12.89	-8.76	-16.63	0.04	-11.60
	Structural break at obs.	-	-	-		-	-	-	
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Ireland / Germany	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	12	0	11	11	19	3
	Test statistic: z(t)	-8.87	-12.29	0.04	-12.39	-4.20	-17.48	0.10	-10.52
	Structural break at obs.	-	-	-	95	-	-	-	262
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Italy / Germany	Number observations	152	155	156	155	312	312	312	309
	Lags	3	3	8	0	1	1	14	3
	Test statistic: z(t)	-5.52	-10.37	0.08	-10.93	-12.40	-16.60	0.11	-9.67
	Structural break at obs.	-	-	-	117	-	-	-	392
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Luxembourg / Germany	Number observations	150	155	156	152	312	312	312	309
	Lags	5	5	4	3	2	2	11	3
	Test statistic: z(t)	-6.02	-9.84	0.06	-7.54	-9.16	-15.79	0.04	-7.96
	Structural break at obs.	-	-	-	116	-	-	-	271
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Netherlands / Germany	Number observations	154	155	156	155	312	312	312	310
	Lags	1	1	52	0	13	13	12	2
	Test statistic: z(t)	-8.51	-12.34	0.14	-12.98	-5.22	-18.01	0.09	-11.87
	Structural break at obs.	-	-	-	117	-	-	-	207
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Germany	Number observations	154	155	156	153	312	312	312	311
	Lags	1	1	15	2	3	3	11	1
	Test statistic: z(t)	-8.88	-11.63	0.08	-8.94	-9.86	-17.73	0.04	-14.20
	Structural break at obs.	-	-	-	114	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Germany	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	6	0	1	1	7	0
	Test statistic: z(t)	-8.03	-11.39	0.10	-12.20	-12.76	-18.56	0.04	-18.79
	Structural break at obs.	-	-	-	95	-	-	-	390
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Ireland / Greece	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	12	0	11	11	19	3
	Test statistic: z(t)	-8.87	-12.29	0.04	-12.39	-4.20	-17.48	0.10	-10.52
	Structural break at obs.	-	-	-	95	-	-	-	262
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Italy / Greece	Number observations	152	155	156	155	312	312	312	309
	Lags	3	3	8	0	1	1	14	3
	Test statistic: z(t)	-5.52	-10.37	0.08	-10.93	-12.40	-16.60	0.11	-9.67
	Structural break at obs.	-	-	-	117	-	-	-	392
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Luxembourg / Greece	Number observations	150	155	156	152	312	312	312	309
	Lags	5	5	4	3	2	2	11	3
	Test statistic: z(t)	-6.02	-9.84	0.06	-7.54	-9.16	-15.79	0.04	-7.96
	Structural break at obs.	-	-	-	116	-	-	-	271
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Netherlands / Greece	Number observations	154	155	156	155	312	312	312	310
	Lags	1	1	52	0	13	13	12	2
	Test statistic: z(t)	-8.51	-12.34	0.14	-12.98	-5.22	-18.01	0.09	-11.87
	Structural break at obs.	-	-	-	117	-	-	-	207
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Greece	Number observations	154	155	156	153	312	312	312	311
	Lags	1	1	15	2	3	3	11	1
	Test statistic: z(t)	-8.88	-11.63	0.08	-8.94	-9.86	-17.73	0.04	-14.20
	Structural break at obs.	-	-	-	114	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Greece	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	6	0	1	1	7	0
	Test statistic: z(t)	-8.03	-11.39	0.10	-12.20	-12.76	-18.56	0.04	-18.79
	Structural break at obs.	-	-	-	95	-	-	-	390
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Italy / Ireland	Number observations	154	155	156	155	312	312	312	308
	Lags	1	1	7	0	8	8	41	4
	Test statistic: z(t)	-8.47	-11.63	0.05	-12.15	-8.07	-19.44	0.08	-10.36
	Structural break at obs.	-	-	-	97	-	-	-	393
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Luxembourg / Ireland	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	31	0	13	13	119	3
	Test statistic: z(t)	-8.69	-11.60	0.08	-12.02	-4.47	-18.26	0.14	-10.63
	Structural break at obs.	-	-	-	97	-	-	-	269
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Netherlands / Ireland	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	10	0	13	13	90	3
	Test statistic: z(t)	-9.62	-12.93	0.06	-13.28	-4.64	-18.53	0.12	-10.25
	Structural break at obs.	-	-	-	109	-	-	-	262
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Portugal / Ireland	Number observations	154	155	156	155	312	312	312	308
	Lags	1	1	9	0	13	13	2	4
	Test statistic: z(t)	-8.75	-11.48	0.06	-11.80	-4.25	-18.87	0.08	-11.26
	Structural break at obs.	-	-	-	97	-	-	-	232
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Ireland	Number observations	143	155	156	153	312	312	312	308
	Lags	12	12	9	2	13	13		4
	Test statistic: z(t)	-2.96	-10.65	0.10	-6.19	-5.02	-19.88		-10.39
	Structural break at obs.	-	-	-	103	-	-	-	283
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H0	H1	H0	H1	H1	H1	H0	H1
Luxembourg / Italy	Number observations	153	155	156	155	312	312	312	309
	Lags	2	2	8	0	5	5	15	3
	Test statistic: z(t)	-6.32	-10.87	0.05	-11.43	-7.73	-17.33	0.13	-9.50
	Structural break at obs.	-	-	-	41	-	-	-	390
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Netherlands / Italy	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	7	0	4	4	19	3
	Test statistic: z(t)	-8.76	-14.06	0.03	-14.34	-7.86	-17.75	0.14	-9.15
	Structural break at obs.	-	-	-	26	-	-	-	392
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Italy	Number observations	154	155	156	153	312	312	312	308
	Lags	1	1	13	2	10	10	7	4
	Test statistic: z(t)	-9.08	-11.87	0.07	-9.02	-4.57	-18.07	0.12	-9.70
	Structural break at obs.	-	-	-	44	-	-	-	242
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Italy	Number observations	154	155	156	155	312	312	312	309
	Lags	1	1	11	0	2	2	8	3
	Test statistic: z(t)	-8.97	-12.28	0.08	-13.00	-9.99	-19.61	0.09	-9.96
	Structural break at obs.	-	-	-	95	-	-	-	284
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of Nominal Exchange Rates									
Period		1960:1 - 1972:12				1973:1 - 1998:12			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Netherlands / Luxembourg	Number observations	142	155	156	152	312	312	312	312
	Lags	13	13	7	3	1	1	21	0
	Test statistic: z(t)	-4.02	-14.50	0.03	-7.25	-12.79	-16.86	0.07	-17.19
	Structural break at obs.	-	-	-	28	-	-	-	274
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Luxembourg	Number observations	151	155	156	153	312	312	312	309
	Lags	4	4	12	2	1	1	13	3
	Test statistic: z(t)	-6.72	-12.15	0.06	-10.10	-13.63	-17.69	0.04	-10.88
	Structural break at obs.	-	-	-	92	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Luxembourg	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	6	0	1	1	12	0
	Test statistic: z(t)	-8.76	-11.56	0.08	-12.17	-12.61	-18.34	0.04	-18.62
	Structural break at obs.	-	-	-	95	-	-	-	390
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Netherlands	Number observations	145	155	156	152	312	312	312	308
	Lags	10	10	12	3	13	13	11	4
	Test statistic: z(t)	-6.04	-14.51	0.07	-9.63	-4.17	-17.86	0.06	-10.02
	Structural break at obs.	-	-	-	124	-	-	-	227
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Netherlands	Number observations	154	155	156	155	312	312	312	312
	Lags	1	1	10	0	1	1	10	0
	Test statistic: z(t)	-9.15	-12.31	0.07	-12.80	-13.34	-18.67	0.05	-18.94
	Structural break at obs.	-	-	-	95	-	-	-	390
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Portugal	Number observations	154	155	156	155	312	312	312	308
	Lags	1	1	9	0	10	10	14	4
	Test statistic: z(t)	-8.43	-11.75	0.09	-12.38	-5.35	-17.55	0.05	-11.11
	Structural break at obs.	-	-	-	90	-	-	-	236
	5% significance level	-3.44	-3.44	0.15	-5.08	-3.43	-3.43	0.15	-5.08
	10% significance level	-3.14	-3.14	0.12	-4.82	-3.13	-3.13	0.12	-4.82
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1

Legend Appendix Table 7: The significance level for the rejection of the H0 is 5%. The significance level for the rejection of the H0 is 5%. The table displays the results for the first differences of monthly nominal

exchange rates. ADF: Augmended Dickey-Fuller Test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags chosen according to Akaike's information criterion (AIC). PP: Phillips–Perron test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags are Newey-West lags and chosen according to Akaike's information criterion (AIC). Critical values for the PP are the same as for the ADF. KPSS: Kwiatkowski-Phillips-Schmidt-Shin test for stationarity (H0 = stationary around linear trend, H1 = unit root). ZA: Zivot-Andrews Unit Root test allowing for a single break in intercept or trend (H0 = unit root, H1 stationarity with a break in the intercept or trend).

Appendix Table 8 – Panel Unit Root Tests of the First Differences of Real Exchange Rates Levels

Test Specification					Results											
					1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test	H0	H1	Autoregression Parameter Rho	Lags / Selection	Panels	Periods	P-value	Accepted Hypothesis	Panels	Periods	P-value	Accepted Hypothesis	Panels	Periods	P-value	Accepted Hypothesis
Breitung	All Panels contain unit roots	All Panels are stationary	Uniform ρ	12	66	155	0.000	H1	66	311	0.000	H1	66	222	0.000	H1
Herwartz	Panels contain unit roots	Panels are stationary	Panel-specific ρ	AIC	66	155	0.000	H1	66	311	0.000	H1	66	222	0.000	H1
Hadri	All panels are stationary	Some panels contain unit roots	-	12	66	155	0.333	H0	66	311	0.317	H0	66	222	0.000	**H1**

Legend Appendix Table 8: The significance level for the rejection of the H0 is 5%. All Panels as strongly balanced. Panel-specific linear trends are not allowed. In all tests a correction for cross-sectional dependence of the panels is applied. A Bartlett Kernel with 12 lag is used to estimate the long-run variance in the Hadri tests.

Appendix Table 9 – Unit Root Tests of the Real Exchange Rate Levels

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Belgium / Austria	Number observations	143	156	157	155	312	312	312	308	220	220	220	218
	Lags	13	13	9	1	6	6	12	4	13	13	10	2
	Test statistic: z(t)	-3.79	-3.21	0.69	-5.00	-1.51	-1.53	2.11	-6.60	-2.35	-3.24	0.68	-4.63
	Structural break at obs.	-	-	-	26	-	-	-	264	-	-	-	645
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	**H1**	**H1**	H1	**H1**	H0	H0	H1	**H1**	H0	**H1**	H1	H0
Finland / Austria	Number observations	154	156	157	156	312	312	312	312	220	220	220	217
	Lags	2	2	9	0	12	12	12	0	9	9	10	3
	Test statistic: z(t)	-0.58	-0.73	1.06	-6.00	-2.05	-1.54	0.89	-4.72	0.15	0.05	1.69	-3.27
	Structural break at obs.	-	-	-	94	-	-	-	383	-	-	-	577
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
France / Austria	Number observations	153	156	157	155	312	312	312	312	220	220	220	217
	Lags	3	3	9		2	2	12		13	13	10	3
	Test statistic: z(t)	-1.24	-1.35	1.16	-6.88	-2.37	-2.37	2.05	-3.87	1.47	1.73	1.84	-2.83
	Structural break at obs.	-			116				219				518
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
Germany / Austria	Number observations	153	156	157	153	312	312	312	308	220	220	220	217
	Lags	3	3	9	3	11	11	12	4	13	13	10	3
	Test statistic: z(t)	-1.77	-2.08	0.34	-5.94	-2.51	-2.52	2.06	-3.37	0.28	0.22	2.03	-4.88
	Structural break at obs.	-	-	-	117	-	-	-	381	-	-	-	547
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	**H0**	**H1**	H0	H0	H1	H0	H0	H0	H1	**H1**
Greece / Austria	Number observations	154	156	157	156	312	312	312	308	220	220	220	217
	Lags	2	2	9	0	6	6	12	4	13	13	10	3
	Test statistic: z(t)	-0.08	-0.15	1.37	-3.60	-2.65	-3.10	0.67	-3.34	-1.06	-1.24	0.74	-2.95
	Structural break at obs.	-	-	-	133	-	-	-	307	-	-	-	637
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	**H1**	H1	H0	H0	H0	H1	H0
Ireland / Austria	Number observations	154	156	157	156	312	312	312	308	220	220	220	218
	Lags	2	2	9	0	12	12	12	4	8	8	10	2
	Test statistic: z(t)	-1.93	-2.03	0.58	-4.19	-2.48	-2.24	0.36	-4.28	-1.83	-1.36	0.56	-3.65
	Structural break at obs.	-	-	-	95	-	-	-	243	-	-	-	587
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	**H0**	H0	H0	H0	H1	H0

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Italy / Austria	Number observations	153	156	157	155	312	312	312	308	220	220	220	218
	Lags	3	3	9	1	2	2	12	4	10	10	10	2
	Test statistic: z(t)	-1.75	-1.94	0.32	-4.61	-3.02	-3.04	0.35	-5.05	-0.72	-0.71	0.51	-3.31
	Structural break at obs.	-	-	-	31	-	-	-	393	-	-	-	645
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	**H0**	H0	**H1**	**H1**	**H0**	**H1**	H0	H0	H1	H0
Luxem-bourg / Austria	Number observations	144	156	157	155	312	312	312	309	220	220	220	217
	Lags	12	12	9	1	5	5	12	3	13	13	10	3
	Test statistic: z(t)	-3.11	-2.34	1.32	-5.40	-1.84	-1.82	2.22	-6.69	-3.56	-4.30	1.22	-4.07
	Structural break at obs.	-	-	-	26	-	-	-	262	-	-	-	651
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	**H1**	H0	H1	**H1**	H0	H0	H1	**H1**	**H1**	**H1**	H1	H0
Nether-lands / Austria	Number observations	143	156	157	154	312	312	312	309	220	220	220	217
	Lags	13	13	9	2	12	12	12	3	12	12	10	3
	Test statistic: z(t)	1.05	-0.29	1.54	-6.80	-1.45	-1.51	2.41	-3.81	-0.90	-2.00	1.29	-3.73
	Structural break at obs.	-	-	-	28	-	-	-	289	-	-	-	506
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
Portugal / Austria	Number observations	145	156	157	153	312	312	312	310	220	220	220	217
	Lags	11	11	9	3	2	2	12	2	9	9	10	3
	Test statistic: z(t)	1.48	0.23	1.20	-3.46	-2.15	-2.32	0.41	-3.29	-1.85	-1.92	0.49	-2.60
	Structural break at obs.	-	-	-	107	-	-	-	361	-	-	-	507
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	**H0**	H0	H0	H0	H1	H0
Spain / Austria	Number observations	154	156	157	156	312	312	312	312	220	220	220	217
	Lags	2	2	9	0	2	2	12	0	11	11	10	3
	Test statistic: z(t)	-1.68	-1.64	0.67	-5.23	-2.59	-2.62	0.18	-4.01	-2.52	-2.38	1.02	-1.93
	Structural break at obs.	-	-	-	95	-	-	-	393	-	-	-	637
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	**H0**	H0	H0	H0	H1	H0
Finland / Belgium	Number observations	154	156	157	156	312	312	312	312	220	220	220	220
	Lags	2	2	9	0	12	12	12	0	9	9	10	0
	Test statistic: z(t)	-0.70	-0.83	0.90	-5.87	-2.10	-1.78	0.45	-3.86	-0.22	-0.24	1.73	-3.92
	Structural break at obs.	-	-	-	94	-	-	-	383	-	-	-	529
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	**H0**	H0	H0	H0	H1	H0

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
France / Belgium	Number observations	153	156	157	155	312	312	312	308	220	220	220	218
	Lags	3	3	9		11	11	12		13	13	10	2
	Test statistic: z(t)	-1.37	-1.42	0.72	-5.75	-2.28	-2.29	0.56	-4.13	0.44	0.60	2.01	-3.45
	Structural break at obs.	-	-	-	116	-	-	-	239	-	-	-	508
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
Germany / Belgium	Number observations	153	156	157	155	312	312	312	308	220	220	220	219
	Lags	3	3	9	1	13	13	12	4	13	13	10	1
	Test statistic: z(t)	-1.67	-1.75	0.56	-4.43	-2.16	-2.08	0.79	-4.03	-0.60	-0.61	2.05	-3.71
	Structural break at obs.	-	-	-	117	-	-	-	262	-	-	-	643
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Greece / Belgium	Number observations	146	156	157	156	312	312	312	308	220	220	220	218
	Lags	10	10	9	0	6	6	12	4	13	13	10	2
	Test statistic: z(t)	1.11	0.57	1.29	-3.63	-1.88	-2.23	0.84	-3.23	-1.08	-1.74	0.70	-3.17
	Structural break at obs.	-	-	-	133	-	-	-	307	-	-	-	643
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Ireland / Belgium	Number observations	154	156	157	156	312	312	312	308	220	220	220	220
	Lags	2	2	9	0	11	11	12	4	9	9	10	0
	Test statistic: z(t)	-1.93	-2.04	0.29	-4.20	-1.48	-1.27	1.00	-4.30	-1.79	-1.13	0.62	-3.68
	Structural break at obs.	-	-	-	95	-	-	-	243	-	-	-	586
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	**H0**	H0	H0	H0	H1	H0	H0	H0	H1	H0
Italy / Belgium	Number observations	150	156	157	154	312	312	312	308	220	220	220	220
	Lags	6	6	9	2	6	6	12	4	2	2	10	0
	Test statistic: z(t)	-1.89	-2.00	0.50	-3.92	-1.58	-1.66	0.82	-4.10	-0.12	-0.15	0.82	-2.79
	Structural break at obs.	-	-	-	31	-	-	-	393	-	-	-	508
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Luxem-bourg / Belgium	Number observations	154	156	157	156	312	312	312	310	220	220	220	217
	Lags	2	2	9	0	4	4	12	2	13	13	10	3
	Test statistic: z(t)	-1.25	-1.45	1.52	-4.94	-2.89	-2.87	1.18	-3.69	-3.41	-7.12	0.96	-3.60
	Structural break at obs.	-	-	-	125	-	-	-	381	-	-	-	512
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	**H1**	H0	H1	H0	**H1**	**H1**	H1	H0

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Nether-lands / Belgium	Number observations	148	156	157	154	312	312	312	308	220	220	220	217
	Lags	8	8	9	2	2	2	12	4	11	11	10	3
	Test statistic: z(t)	-0.94	-0.40	1.56	-4.88	-2.33	-2.39	0.23	-5.20	-0.45	-1.40	1.38	-3.10
	Structural break at obs.	-	-	-	55	-	-	-	262	-	-	-	566
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	**H0**	**H1**	H0	H0	H1	H0
Portugal / Belgium	Number observations	145	156	157	153	312	312	312	308	220	220	220	217
	Lags	11	11	9	3	2	2	12	4	12	12	10	3
	Test statistic: z(t)	1.35	0.73	1.38	-3.27	-1.45	-1.60	1.18	-2.79	-1.52	-1.85	0.47	-3.33
	Structural break at obs.	-	-	-	40	-	-	-	210	-	-	-	508
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Belgium	Number observations	154	156	157	156	312	312	312	312	220	220	220	217
	Lags	2	2	9	0	2	2	12	0	12	12	10	3
	Test statistic: z(t)	-1.73	-1.68	0.81	-5.70	-1.96	-1.96	1.45	-4.43	-2.21	-2.21	0.97	-2.05
	Structural break at obs.	-	-	-	95	-	-	-	393	-	-	-	507
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
France / Finland	Number observations	154	156	157	156	312	312	312	312	220	220	220	219
	Lags	2	2	9		2	2	12		3	3	10	1
	Test statistic: z(t)	-1.72	-1.86	0.64	-7.35	-2.17	-2.06	0.34	-4.59	-0.97	-1.05	0.61	-4.19
	Structural break at obs.	-			94				383				522
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	**H0**	H0	H0	H0	H1	H0
Germany / Finland	Number observations	154	156	157	156	312	312	312	312	220	220	220	217
	Lags	2	2	9	0	12	12	12	0	13	13	10	3
	Test statistic: z(t)	-0.26	-0.37	0.99	-4.13	-2.44	-1.86	0.39	-4.64	-2.75	-2.49	0.82	-3.43
	Structural break at obs.	-	-	-	94	-	-	-	382	-	-	-	528
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	**H0**	H0	H0	H0	H1	H0
Greece / Finland	Number observations	154	156	157	156	312	312	312	309	220	220	220	217
	Lags	2	2	9	0	5	5	12	3	13	13	10	3
	Test statistic: z(t)	-1.95	-2.27	0.27	-10.41	-1.19	-1.45	0.53	-4.30	-1.31	-1.33	1.21	-3.27
	Structural break at obs.	-	-	-	94	-	-	-	381	-	-	-	637
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	**H0**	**H1**	H0	H0	H1	H0	H0	H0	H1	H0

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Ireland / Finland	Number observations	152	156	157	154	312	312	312	309	220	220	220	217
	Lags	4	4	9	2	12	12	12	3	8	8	10	3
	Test statistic: z(t)	-0.61	-1.26	0.94	-3.08	-2.68	-2.17	0.94	-3.89	-2.28	-2.16	0.53	-4.01
	Structural break at obs.	-	-	-	94	-	-	-	320	-	-	-	585
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Italy / Finland	Number observations	154	156	157	156	312	312	312	309	220	220	220	217
	Lags	2	2	9	0	5	5	12	3	9	9	10	3
	Test statistic: z(t)	-0.90	-1.03	1.25	-9.88	-3.23	-3.04	0.74	-4.05	-1.55	-1.58	1.22	-3.95
	Structural break at obs.	-	-	-	94	-	-	-	377	-	-	-	520
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	**H1**	**H1**	H1	H0	H0	H0	H1	H0
Luxem-bourg / Finland	Number observations	154	156	157	156	312	312	312	312	220	220	220	218
	Lags	2	2	9	0	12	12	12	0	9	9	10	2
	Test statistic: z(t)	-0.95	-1.12	0.71	-5.48	-2.21	-1.89	0.52	-4.25	-1.62	-1.78	1.76	-4.35
	Structural break at obs.	-	-	-	94	-	-	-	383	-	-	-	524
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
Nether-lands / Finland	Number observations	154	156	157	156	312	312	312	312	220	220	220	217
	Lags	2	2	9	0	12	12	12	0	13	13	10	3
	Test statistic: z(t)	0.01	-0.02	1.29	-5.32	-2.52	-1.89	0.42	-4.47	-1.92	-2.54	0.72	-2.82
	Structural break at obs.	-	-	-	94	-	-	-	383	-	-	-	577
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	**H0**	H0	H0	H0	H1	H0
Portugal / Finland	Number observations	154	156	157	156	312	312	312	308	220	220	220	217
	Lags	2	2	9	0	4	4	12	4	12	12	10	3
	Test statistic: z(t)	0.09	0.10	1.16	-4.47	-0.82	-1.06	0.74	-4.46	-1.64	-1.97	0.99	-3.12
	Structural break at obs.	-	-	-	94	-	-	-	379	-	-	-	509
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Finland	Number observations	152	156	157	155	312	312	312	309	220	220	220	217
	Lags	4	4	9	1	2	2	12	3	13	13	10	3
	Test statistic: z(t)	0.15	-0.28	1.61	-4.51	-1.87	-1.90	1.07	-3.44	-1.89	-1.98	1.46	-2.95
	Structural break at obs.	-	-	-	94	-	-	-	275	-	-	-	519
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Germany / France	Number observations	151	156	157	153	312	312	312	311	220	220	220	217
	Lags	5	5	9	3	11	11	12	1	13	13	10	3
	Test statistic: z(t)	-1.04	-0.91	0.81	-8.52	-3.81	-3.07	0.33	-4.22	-1.66	-2.63	0.44	-3.81
	Structural break at obs.	-	-	-	116	-	-	-	219	-	-	-	508
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	**H1**	**H1**	**H0**	H0	H0	H0	**H0**	H0
Greece / France	Number observations	148	156	157	156	312	312	312	312	220	220	220	217
	Lags	8	8	9	0	2	2	12	0	13	13	10	3
	Test statistic: z(t)	-2.18	-1.61	0.88	-2.84	-2.65	-2.84	0.65	-4.38	-1.34	-1.38	1.59	-3.68
	Structural break at obs.	-	-	-	116	-	-	-	302	-	-	-	643
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Ireland / France	Number observations	154	156	157	156	312	312	312	308	220	220	220	218
	Lags	2	2	9	0	12	12	12	4	13	13	10	2
	Test statistic: z(t)	-2.01	-1.97	0.19	-3.72	-1.75	-1.60	1.15	-4.22	-3.38	-2.96	0.65	-4.74
	Structural break at obs.	-	-	-	116	-	-	-	251	-	-	-	586
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	**H0**	H0	H0	H0	H1	H0	**H1**	**H1**	H1	H0
Italy / France	Number observations	154	156	157	154	312	312	312	309	220	220	220	218
	Lags	2	2	9	2	2	2	12	3	12	12	10	2
	Test statistic: z(t)	-1.77	-1.57	1.27	-4.53	-1.90	-2.03	0.79	-5.13	-2.13	-2.09	2.03	-3.97
	Structural break at obs.	-	-	-	116	-	-	-	393	-	-	-	650
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	**H1**	H0	H0	H1	H0
Luxem-bourg / France	Number observations	154	156	157	156	312	312	312	308	220	220	220	217
	Lags	2	2	9	0	11	11	12	4	13	13	10	3
	Test statistic: z(t)	-1.89	-1.94	0.37	-6.52	-2.13	-2.14	0.90	-4.07	-1.73	-1.62	2.09	-4.52
	Structural break at obs.	-	-	-	116	-	-	-	239	-	-	-	608
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	**H0**	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
Nether-lands / France	Number observations	154	156	157	156	312	312	312	311	220	220	220	217
	Lags	2	2	9	0	9	9	12	1	12	12	10	3
	Test statistic: z(t)	-0.08	0.04	1.43	-6.01	-3.31	-3.10	0.63	-4.14	-1.54	-1.88	1.36	-3.98
	Structural break at obs.	-	-	-	116	-	-	-	236	-	-	-	542
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	**H1**	**H1**	H1	H0	H0	H0	H1	H0

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Portugal / France	Number observations	153	156	157	153	312	312	312	312	220	220	220	217
	Lags	3	3	9	3	2	2	12	0	8	8	10	3
	Test statistic: z(t)	0.46	0.30	1.23	-4.40	-1.61	-1.72	0.98	-4.50	-2.37	-2.59	1.63	-2.79
	Structural break at obs.	-	-	-	116	-	-	-	205	-	-	-	635
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Spain / France	Number observations	154	156	157	156	312	312	312	312	220	220	220	217
	Lags	2	2	9	0	3	3	12	0	13	13	10	3
	Test statistic: z(t)	-1.13	-1.07	1.14	-5.90	-2.31	-2.43	1.41	-4.66	-2.76	-2.68	1.90	-2.75
	Structural break at obs.	-	-	-	95	-	-	-	393	-	-	-	637
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
Greece / Germany	Number observations	145	156	157	156	312	312	312	308	220	220	220	217
	Lags	11	11	9	0	6	6	12	4	13	13	10	3
	Test statistic: z(t)	0.41	0.77	1.18	-3.35	-2.57	-3.26	0.49	-4.46	-1.39	-1.49	1.46	-3.45
	Structural break at obs.	-	-	-	133	-	-	-	307	-	-	-	643
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	**H1**	H1	H0	H0	H0	H1	H0
Ireland / Germany	Number observations	154	156	157	156	312	312	312	308	220	220	220	219
	Lags	2	2	9	0	12	12	12	4	13	13	10	1
	Test statistic: z(t)	-1.39	-1.38	0.86	-4.86	-1.87	-1.58	0.87	-3.99	-2.98	-2.90	0.65	-3.76
	Structural break at obs.	-	-	-	95	-	-	-	243	-	-	-	586
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	**H1**	**H1**	H1	H0
Italy / Germany	Number observations	152	156	157	155	312	312	312	308	220	220	220	218
	Lags	4	4	9	1	2	2	12	4	13	13	10	2
	Test statistic: z(t)	-0.85	-0.71	0.37	-3.97	-2.01	-2.01	0.61	-5.64	-2.41	-2.84	1.78	-2.37
	Structural break at obs.	-	-	-	117	-	-	-	393	-	-	-	643
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	**H0**	H0	H0	H0	H1	**H1**	H0	H0	H1	H0
Luxem-bourg / Germany	Number observations	150	156	157	155	312	312	312	308	220	220	220	217
	Lags	6	6	9	1	3	3	12	4	13	13	10	3
	Test statistic: z(t)	-1.26	-1.39	1.08	-4.31	-1.75	-1.64	1.42	-4.19	-3.48	-2.36	2.04	-5.06
	Structural break at obs.	-	-	-	117	-	-	-	262	-	-	-	655
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	**H1**	H0	H1	**H1**

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Nether-lands / Germany	Number observations	154	156	157	156	312	312	312	309	220	220	220	217
	Lags	2	2	9	0	8	8	12	3	13	13	10	3
	Test statistic: z(t)	-1.36	-1.27	1.34	-5.81	-1.45	-1.80	1.26	-3.79	-2.84	-2.40	1.37	-3.67
	Structural break at obs.	-	-	-	117	-	-	-	342	-	-	-	566
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
Portugal / Germany	Number observations	154	156	157	153	312	312	312	310	220	220	220	217
	Lags	2	2	9	3	2	2	12	2	13	13	10	3
	Test statistic: z(t)	-0.88	-0.90	1.26	-4.43	-1.85	-2.05	0.89	-3.53	-2.34	-2.89	1.40	-3.10
	Structural break at obs.	-	-	-	91	-	-	-	210	-	-	-	508
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	**H1**	H1	H0
Spain / Germany	Number observations	154	156	157	156	312	312	312	312	220	220	220	217
	Lags	2	2	9	0	2	2	12	0	13	13	10	3
	Test statistic: z(t)	-1.47	-1.42	0.52	-3.76	-2.15	-2.19	1.00	-4.54	-2.86	-2.90	1.75	-2.38
	Structural break at obs.	-	-	-	95	-	-	-	393	-	-	-	637
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	**H1**	H1	H0
Ireland / Greece	Number observations	148	156	157	153	312	312	312	308	220	220	220	218
	Lags	8	8	9	3	6	6	12	4	12	12	10	2
	Test statistic: z(t)	-1.29	-1.27	0.78	-2.77	-1.39	-1.67	0.67	-3.09	-1.95	-1.98	0.95	-5.20
	Structural break at obs.	-	-	-	95	-	-	-	234	-	-	-	587
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	**H1**
Italy / Greece	Number observations	148	156	157	156	312	312	312	308	220	220	220	217
	Lags	8	8	9	0	8	8	12	4	13	13	10	3
	Test statistic: z(t)	-0.63	-0.25	1.43	-3.35	-1.74	-2.00	0.45	-5.26	-1.21	-2.13	1.02	-4.06
	Structural break at obs.	-	-	-	70	-	-	-	393	-	-	-	643
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	**H0**	**H1**	H0	H0	H1	H0
Luxem-bourg / Greece	Number observations	146	156	157	156	312	312	312	308	220	220	220	218
	Lags	10	10	9	0	2	2	12	4	13	13	10	2
	Test statistic: z(t)	0.56	0.14	1.03	-3.69	-2.24	-2.33	1.12	-3.44	-1.10	-2.58	0.56	-3.79
	Structural break at obs.	-	-	-	133	-	-	-	307	-	-	-	638
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Nether-lands / Greece	Number observations	153	156	157	156	312	312	312	308	220	220	220	217
	Lags	3	3	9	0	6	6	12	4	12	12	10	3
	Test statistic: z(t)	0.96	0.92	1.49	-4.07	-1.88	-2.42	1.07	-3.39	-1.48	-1.59	1.06	-3.47
	Structural break at obs.	-	-	-	133	-	-	-	307	-	-	-	637
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Portugal / Greece	Number observations	144	156	157	153	312	312	312	308	220	220	220	218
	Lags	12	12	9	3	6	6	12	4	13	13	10	2
	Test statistic: z(t)	1.45	2.06	1.42	-2.85	-2.31	-3.35	0.57	-3.93	-1.32	-1.85	0.82	-3.18
	Structural break at obs.	-	-	-	133	-	-	-	210	-	-	-	655
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	**H1**	H1	H0	H0	H0	H1	H0
Spain / Greece	Number observations	151	156	157	153	312	312	312	310	220	220	220	218
	Lags	5	5	9	3	4	4	12	2	13	13	10	2
	Test statistic: z(t)	-0.54	-0.41	1.29	-6.66	-1.95	-2.29	0.62	-3.96	-1.94	-3.71	0.22	-3.68
	Structural break at obs.	-	-	-	95	-	-	-	393	-	-	-	642
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	**H1**	**H0**	H0
Italy / Ireland	Number observations	154	156	157	156	312	312	312	308	220	220	220	220
	Lags	2	2	9	0	9	9	12	4	8	8	10	0
	Test statistic: z(t)	-1.93	-1.84	0.59	-3.04	-2.49	-3.35	0.41	-4.62	-2.28	-1.75	0.50	-4.46
	Structural break at obs.	-	-	-	121	-	-	-	319	-	-	-	586
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	**H1**	**H0**	H0	H0	H0	H1	H0
Luxem-bourg / Ireland	Number observations	154	156	157	156	312	312	312	308	220	220	220	218
	Lags	2	2	9	0	11	11	12	4	8	8	10	2
	Test statistic: z(t)	-2.36	-2.48	0.16	-4.47	-1.43	-1.25	1.13	-3.96	-1.19	-0.82	0.78	-4.17
	Structural break at obs.	-	-	-	95	-	-	-	243	-	-	-	586
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	**H0**	H0	H0	H0	H1	H0	H0	H0	H1	H0
Nether-lands / Ireland	Number observations	154	156	157	156	312	312	312	308	220	220	220	217
	Lags	2	2	9	0	11	11	12	4	13	13	10	3
	Test statistic: z(t)	-0.47	-0.50	1.36	-5.42	-1.50	-1.40	1.18	-4.53	-2.16	-1.93	0.47	-3.10
	Structural break at obs.	-	-	-	95	-	-	-	243	-	-	-	587
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Portugal / Ireland	Number observations	154	156	157	156	312	312	312	308	220	220	220	218
	Lags	2	2	9	0	11	11	12	4	12	12	10	2
	Test statistic: z(t)	-0.11	-0.10	1.20	-4.86	-1.10	-1.22	0.55	-3.55	-2.10	-1.52	0.73	-3.57
	Structural break at obs.	-	-	-	95	-	-	-	221	-	-	-	587
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Ireland	Number observations	143	156	157	153	312	312	312	308	220	220	220	217
	Lags	13	13	9	3	11	11	12	4	12	12	10	3
	Test statistic: z(t)	-1.36	-1.04	1.11	-3.54	-2.22	-2.62	0.24	-3.67	-1.35	-0.87	1.39	-4.83
	Structural break at obs.	-	-	-	109	-	-	-	343	-	-	-	588
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	**H0**	H0	H0	H0	H1	**H1**
Luxem-bourg / Italy	Number observations	153	156	157	156	312	312	312	308	220	220	220	217
	Lags	3	3	9	0	6	6	12	4	13	13	10	3
	Test statistic: z(t)	-2.23	-2.17	0.89	-2.96	-1.39	-1.51	0.96	-4.17	-0.30	-4.06	1.78	-6.15
	Structural break at obs.	-	-	-	26	-	-	-	393	-	-	-	516
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	**H1**	H1	**H1**
Nether-lands / Italy	Number observations	153	156	157	156	312	312	312	309	220	220	220	217
	Lags	3	3	9	0	5	5	12	3	11	11	10	3
	Test statistic: z(t)	0.17	0.20	1.14	-3.82	-1.84	-1.84	0.89	-5.26	-0.78	-2.18	1.03	-3.52
	Structural break at obs.	-	-	-	36	-	-	-	392	-	-	-	647
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	**H1**	H0	H0	H1	H0
Portugal / Italy	Number observations	154	156	157	153	312	312	312	308	220	220	220	217
	Lags	2	2	9	3	11	11	12	4	13	13	10	3
	Test statistic: z(t)	0.30	0.31	0.94	-3.20	-1.85	-1.72	0.51	-3.67	-2.16	-2.72	0.51	-3.25
	Structural break at obs.	-	-	-	36	-	-	-	384	-	-	-	583
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Italy	Number observations	154	156	157	156	312	312	312	309	220	220	220	217
	Lags	2	2	9	0	3	3	12	3	12	12	10	3
	Test statistic: z(t)	-1.28	-1.30	0.79	-6.64	-3.58	-3.61	0.39	-4.29	-2.23	-2.05	1.57	-3.00
	Structural break at obs.	-	-	-	95	-	-	-	273	-	-	-	531
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	**H1**	**H1**	**H0**	H0	H0	H0	H1	H0

Unit Root Tests of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Nether-lands / Luxem-bourg	Number observations	143	156	157	154	312	312	312	312	220	220	220	217
	Lags	13	13	9	2	2	2	12	0	13	13	10	3
	Test statistic: z(t)	-1.08	-0.11	1.62	-5.00	-2.60	-2.65	0.60	-4.82	-1.05	-2.90	1.73	-4.88
	Structural break at obs.	-	-	-	55	-	-	-	262	-	-	-	548
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	**H1**	H0	**H1**	H1	**H1**
Portugal / Luxem-bourg	Number observations	151	156	157	153	312	312	312	312	220	220	220	217
	Lags	5	5	9	3	2	2	12	0	13	13	10	3
	Test statistic: z(t)	0.55	0.43	1.48	-3.87	-1.36	-1.50	1.40	-4.17	-0.91	-2.82	0.70	-3.16
	Structural break at obs.	-	-	-	40	-	-	-	206	-	-	-	508
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Luxem-bourg	Number observations	154	156	157	156	312	312	312	312	220	220	220	217
	Lags	2	2	9	0	2	2	12	0	13	13	10	3
	Test statistic: z(t)	-1.60	-1.58	0.99	-5.33	-1.96	-1.98	1.53	-4.63	-1.35	-2.03	0.87	-2.94
	Structural break at obs.	-	-	-	95	-	-	-	393	-	-	-	531
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	**H1**	H0	H0	H1	H0	H0	H0	H1	H0
Portugal / Nether-lands	Number observations	145	156	157	153	312	312	312	310	220	220	220	217
	Lags	11	11	9	3	2	2	12	2	12	12	10	3
	Test statistic: z(t)	-1.40	-2.05	0.51	-3.82	-1.39	-1.56	1.17	-3.23	-1.78	-2.35	0.95	-3.35
	Structural break at obs.	-	-	-	110	-	-	-	345	-	-	-	635
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	H1	H0	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Nether-lands	Number observations	154	156	157	156	312	312	312	312	220	220	220	217
	Lags	2	2	9	0	2	2	12	0	11	11	10	3
	Test statistic: z(t)	-1.36	-1.47	0.35	-4.65	-1.82	-1.90	1.42	-4.23	-1.67	-1.78	1.49	-2.69
	Structural break at obs.	-	-	-	95	-	-	-	392	-	-	-	531
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	**H0**	H0	H0	H0	H1	H0	H0	H0	H1	H0
Spain / Portugal	Number observations	154	156	157	156	312	312	312	310	220	220	220	217
	Lags	2	2	9	0	11	11	12	2	13	13	10	3
	Test statistic: z(t)	-1.13	-1.03	0.42	-4.17	-1.60	-1.81	0.50	-4.20	-1.30	-1.62	1.71	-3.31
	Structural break at obs.	-	-	-	95	-	-	-	221	-	-	-	572
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H0	H0	**H0**	H0	H0	H0	H1	H0	H0	H0	H1	H0

Legend Appendix Table 9: The significance level for the rejection of the H0 is 5%. The table displays the results for seasonally unadjusted monthly real exchange rates. Linear trends are not allowed ADF: Augmended Dickey-Fuller Test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags chosen according to Akaike's information criterion (AIC). PP: Phillips–Perron test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags are Newey-West lags and chosen according to Akaike's information criterion (AIC). Critical values for the PP are the same as for the ADF. KPSS: Kwiatkowski-Phillips-Schmidt-Shin test for stationarity (H0 = stationary around linear trend, H1 = unit root). ZA: Zivot-Andrews Unit Root test allowing for a single break in intercept or trend (H0 = unit root, H1 stationarity with a break in the intercept or trend).

Appendix Table 10 – Unit Root Tests of the First Differences of Real Exchange Rates

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Belgium / Austria	Number observations	146	155	156	152	312	312	312	309	220	220	220	217
	Lags	9	9	79	3	5	5	24	3	13	13	8	3
	Test statistic: z(t)	-5.88	-10.83	0.29	-8.70	-7.38	-15.99	0.13	-8.80	-4.49	-18.56	0.06	-11.06
	Structural break at obs.	-	-	-	43	-	-	-	230	-	-	-	627
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Finland / Austria	Number observations	154	155	156	155	312	312	312	312	220	220	220	217
	Lags	1	1	8	0	11	11	4	0	13	13	11	3
	Test statistic: z(t)	-9.80	-13.40	0.19	-13.62	-4.06	-16.95	0.10	-17.07	-2.83	-15.84	0.20	-11.57
	Structural break at obs.	-	-	-	94	-	-	-	400	-	-	-	548
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	H0	H1
France / Austria	Number observations	154	155	156	155	312	312	312	309	220	220	220	217
	Lags	1	1	19		1	1	31		13	13	9	3
	Test statistic: z(t)	-8.08	-10.96	0.19	-11.07	-12.41	-16.69	0.10	-9.94	-3.26	-19.06	0.50	-10.81
	Structural break at obs.	-			114				219				506
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	**H1**	H1
Germany / Austria	Number observations	151	155	156	153	312	312	312	309	220	220	220	217
	Lags	4	4	19	2	13	13	10	3	13	13	11	3
	Test statistic: z(t)	-6.03	-10.54	0.13	-8.61	-4.15	-18.96	0.39	-10.79	-4.08	-22.22	0.14	-13.95
	Structural break at obs.	-	-	-	116	-	-	-	208	-	-	-	547
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88		0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57		0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Greece / Austria	Number observations	142	155	156	155	312	312	312	309	220	220	220	217
	Lags	13	13	12	0	5	5	17	3	13	13	11	3
	Test statistic: z(t)	-2.77	-12.26	0.19	-12.33	-8.41	-16.73	0.19	-12.13	-3.48	-18.02	0.57	-16.07
	Structural break at obs.	-	-	-	67	-	-	-	268	-	-	-	614
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	**H0**	H1	H0	H1	H1	H1	H0	H1	H1	H1	**H1**	H1
Ireland / Austria	Number observations	154	155	156	155	312	312	312	309	220	220	220	217
	Lags	1	1	12	0	13	13	5	3	13	13	30	3
	Test statistic: z(t)	-9.31	-11.88	0.07	-12.12	-4.73	-17.70	0.11	-10.77	-2.00	-16.44	0.53	-9.40
	Structural break at obs.	-	-	-	97	-	-	-	212	-	-	-	585
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Italy / Austria	Number observations	154	155	156	155	312	312	312	309	220	220	220	217
	Lags	1	1	19	0	1	1	13	3	13	13	8	3
	Test statistic: z(t)	-8.92	-10.92	0.19	-11.27	-12.60	-16.98	0.15	-9.78	-2.85	-17.14	0.72	-13.77
	Structural break at obs.	-	-	-	31	-	-	-	377	-	-	-	633
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Luxem-bourg / Austria	Number observations	142	155	156	152	312	312	312	310	220	220	220	217
	Lags	13	13	24	3	4	4	20	2	13	13	7	3
	Test statistic: z(t)	-3.78	-10.23	0.22	-8.17	-8.14	-15.79	0.18	-11.86	-4.33	-31.13	0.41	-11.64
	Structural break at obs.	-	-	-	31	-	-	-	235	-	-	-	544
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Nether-lands / Austria	Number observations	143	155	156	152	312	312	312	308	220	220	220	217
	Lags	12	12	22	3	13	13	12	4	13	13	15	3
	Test statistic: z(t)	-5.77	-14.52	0.33	-8.55	-5.10	-22.58	0.32	-11.54	-3.53	-12.95	0.21	-15.28
	Structural break at obs.	-	-	-	68	-	-	-	233	-	-	-	523
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Austria	Number observations	142	155	156	153	312	312	312	311	220	220	220	217
	Lags	13	13	15	2	3	3	12	1	13	13	12	3
	Test statistic: z(t)	-2.67	-11.27	0.41	-10.06	-10.02	-17.94	0.17	-14.26	-2.31	-14.53	0.75	-11.03
	Structural break at obs.	-	-	-	67	-	-	-	390	-	-	-	569
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	**H0**	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Spain / Austria	Number observations	154	155	156	155	312	312	312	312	220	220	220	218
	Lags	1	1	13	0	1	1	8	0	13	13	15	2
	Test statistic: z(t)	-8.58	-11.28	0.11	-11.63	-12.56	-18.71	0.05	-18.80	-2.21	-13.65	0.84	-17.17
	Structural break at obs.	-	-	-	89	-	-	-	390	-	-	-	584
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Finland / Belgium	Number observations	154	155	156	155	312	312	312	312	220	220	220	217
	Lags	1	1	9	0	11	11	11	0	13	13	11	3
	Test statistic: z(t)	-9.46	-13.23	0.27	-13.57	-4.17	-16.62	0.15	-16.75	-3.05	-16.26	0.12	-9.85
	Structural break at obs.	-	-	-	96	-	-	-	227	-	-	-	549
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
France / Belgium	Number observations	153	155	156	155	312	312	312	309	220	220	220	219
	Lags	2	2	4		10	10	7		13	13	6	1
	Test statistic: z(t)	-7.01	-10.62	0.22	-10.84	-5.16	-15.73	0.06	-10.89	-3.47	-20.39	0.18	-14.24
	Structural break at obs.	-			119				219				504
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Germany / Belgium	Number observations	153	155	156	153	312	312	312	309	220	220	220	219
	Lags	2	2	4	2	12	12	10	3	13	13	2	1
	Test statistic: z(t)	-7.14	-9.50	0.09	-7.67	-4.94	-14.77	0.05	-7.38	-4.01	-21.14	0.03	-13.79
	Structural break at obs.	-	-	-	116	-	-	-	213	-	-	-	627
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Greece / Belgium	Number observations	146	155	156	153	312	312	312	309	220	220	220	217
	Lags	9	9	14	2	5	5	19	3	13	13	10	3
	Test statistic: z(t)	-4.53	-12.36	0.28	-8.23	-8.11	-16.83	0.09	-11.00	-3.23	-18.78	0.39	-17.99
	Structural break at obs.	-	-	-	134	-	-	-	276	-	-	-	613
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Ireland / Belgium	Number observations	154	155	156	155	312	312	312	309	220	220	220	220
	Lags	1	1	19	0	13	13	46	3	13	13	12	0
	Test statistic: z(t)	-8.84	-11.60	0.14	-12.18	-4.27	-18.14	0.09	-10.51	-1.88	-15.98	0.79	-16.55
	Structural break at obs.	-	-	-	97	-	-	-	227	-	-	-	574
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Italy / Belgium	Number observations	150	155	156	154	312	312	312	309	220	220	220	220
	Lags	5	5	7	1	5	5	16	3	1	1	8	0
	Test statistic: z(t)	-4.05	-8.84	0.45	-8.63	-7.53	-17.47	0.15	-9.57	####	-16.21	0.45	-16.67
	Structural break at obs.	-	-	-	42	-	-	-	227	-	-	-	584
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Luxem-bourg / Belgium	Number observations	152	155	156	152	312	312	312	311	220	220	220	218
	Lags	3	3	10	3	3	3	18	1	13	13	7	2
	Test statistic: z(t)	-7.80	-12.75	0.05	-8.12	-9.42	-15.34	0.13	-12.88	-4.13	-33.44	0.23	-12.90
	Structural break at obs.	-	-	-	46	-	-	-	219	-	-	-	590
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Nether-lands / Belgium	Number observations	142	155	156	152	312	312	312	312	220	220	220	218
	Lags	13	13	8	3	1	1	13	0	13	13	15	2
	Test statistic: z(t)	-4.25	-15.16	0.05	-8.02	-13.00	-17.55	0.05	-17.85	-3.51	-12.82	0.12	-15.44
	Structural break at obs.	-	-	-	28	-	-	-	277	-	-	-	586
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Belgium	Number observations	145	155	156	153	312	312	312	309	220	220	220	217
	Lags	10	10	12	2	1	1	12	3	13	13	13	3
	Test statistic: z(t)	-4.92	-12.97	0.36	-9.84	-13.65	-17.86	0.11	-10.50	-2.98	-14.13	0.50	-16.36
	Structural break at obs.	-	-	-	80	-	-	-	231	-	-	-	572
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	**H1**	H1
Spain / Belgium	Number observations	154	155	156	155	312	312	312	312	220	220	220	218
	Lags	1	1	5	0	1	1	11	0	13	13	14	2
	Test statistic: z(t)	-8.54	-11.50	0.18	-11.96	-12.40	-18.47	0.08	-18.67	-2.90	-13.65	0.61	-20.48
	Structural break at obs.	-	-	-	89	-	-	-	219	-	-	-	507
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	**H1**	H1
France / Finland	Number observations	154	155	156	155	312	312	312	312	220	220	220	220
	Lags	1	1	8		1	1	8		13	13	6	0
	Test statistic: z(t)	-9.32	-13.00	0.08	-13.17	-11.42	-16.71	0.13	-17.00	-2.55	-16.68	0.16	-17.37
	Structural break at obs.	-			96				400				554
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	H0	H1
Germany / Finland	Number observations	154	155	156	155	312	312	312	312	220	220	220	217
	Lags	1	1	8	0	11	11	9	0	13	13	11	3
	Test statistic: z(t)	-9.65	-13.19	0.26	-13.65	-3.93	-16.26	0.16	-16.25	-3.15	-17.03	0.13	-12.48
	Structural break at obs.	-	-	-	94	-	-	-	400	-	-	-	554
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Greece / Finland	Number observations	152	155	156	152	312	312	312	310	220	220	220	217
	Lags	3	3	7	3	4	4	17	2	13	13	10	3
	Test statistic: z(t)	-7.59	-14.08	0.11	-8.06	-9.08	-16.50	0.25	-11.93	-3.09	-18.08	0.30	-14.99
	Structural break at obs.	-	-	-	94	-	-	-	356	-	-	-	610
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Ireland / Finland	Number observations	152	155	156	154	312	312	312	310	220	220	220	218
	Lags	3	3	6	1	13	13	22	2	13	13	24	2
	Test statistic: z(t)	-7.44	-19.96	0.16	-12.69	-3.79	-18.09	0.11	-9.73	-1.97	-18.10	0.51	-9.05
	Structural break at obs.	-	-	-	94	-	-	-	207	-	-	-	573
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Italy / Finland	Number observations	154	155	156	155	312	312	312	312	220	220	220	217
	Lags	1	1	8	0	2	2	12	0	13	13	12	3
	Test statistic: z(t)	-9.78	-13.89	0.11	-14.15	-8.76	-15.78	0.20	-16.22	-2.58	-15.27	0.27	-11.30
	Structural break at obs.	-	-	-	96	-	-	-	205	-	-	-	554
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	H0	H1
Luxem-bourg / Finland	Number observations	154	155	156	155	312	312	312	312	220	220	220	217
	Lags	1	1	7	0	11	11	11	0	13	13	1	3
	Test statistic: z(t)	-9.57	-13.29	0.24	-13.60	-4.03	-16.53	0.17	-16.70	-3.53	-28.84	0.09	-7.88
	Structural break at obs.	-	-	-	96	-	-	-	400	-	-	-	558
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Nether-lands / Finland	Number observations	154	155	156	155	312	312	312	312	220	220	220	218
	Lags	1	1	9	0	1	1	10	0	13	13	15	2
	Test statistic: z(t)	-9.43	-13.47	0.30	-13.77	-11.80	-17.01	0.14	-17.29	-3.65	-11.10	0.08	-19.01
	Structural break at obs.	-	-	-	94	-	-	-	377	-	-	-	548
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Finland	Number observations	154	155	156	155	312	312	312	309	220	220	220	217
	Lags	1	1	20	0	13	13	15	3	13	13	13	3
	Test statistic: z(t)	-8.54	-12.25	0.38	-12.66	-4.00	-16.86	0.33	-11.01	-2.38	-14.15	0.37	-13.39
	Structural break at obs.	-	-	-	91	-	-	-	400	-	-	-	560
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	H0	H1
Spain / Finland	Number observations	152	155	156	154	312	312	312	310	220	220	220	218
	Lags	3	3	6	1	1	1	18	2	13	13	15	2
	Test statistic: z(t)	-7.77	-19.43	0.11	-12.38	-12.63	-16.64	0.06	-11.74	-2.62	-11.74	0.46	-17.72
	Structural break at obs.	-	-	-	96	-	-	-	400	-	-	-	560
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	H0	H1

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Germany / France	Number observations	151	155	156	153	312	312	312	308	220	220	220	217
	Lags	4	4	7	2	10	10	9	4	13	13	10	3
	Test statistic: z(t)	-4.92	-9.80	0.14	-7.15	-4.60	-15.98	0.03	-9.05	-2.80	-23.12	0.33	-13.95
	Structural break at obs.	-	-	-	115	-	-	-	219	-	-	-	508
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88		0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57		0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	H0	H1
Greece / France	Number observations	144	155	156	155	312	312	312	309	220	220	220	217
	Lags	11	11	10	0	1	1	6	3	13	13	10	3
	Test statistic: z(t)	-4.11	-13.45	0.07	-13.62	-13.47	-17.86	0.05	-9.61	-3.63	-21.06	0.31	-15.87
	Structural break at obs.	-	-	-	133	-	-	-	315	-	-	-	618
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Ireland / France	Number observations	154	155	156	155	312	312	312	309	220	220	220	217
	Lags	1	1	6	0	13	13	12	3	13	13	14	3
	Test statistic: z(t)	-8.33	-11.60	0.06	-11.92	-4.95	-19.61	0.10	-9.75	-2.35	-18.12	0.55	-7.32
	Structural break at obs.	-	-	-	97	-	-	-	225	-	-	-	581
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Italy / France	Number observations	154	155	156	155	312	312	312	312	220	220	220	217
	Lags	1	1	1	0	1	1	18	0	13	13	7	3
	Test statistic: z(t)	-7.73	-11.70	0.04	-11.85	-13.75	-18.84	0.13	-19.06	-3.19	-20.58	0.24	-12.42
	Structural break at obs.	-	-	-	114	-	-	-	387	-	-	-	583
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Luxem-bourg / France	Number observations	154	155	156	155	312	312	312	309	220	220	220	217
	Lags	1	1	2	0	10	10	7	3	13	13	7	3
	Test statistic: z(t)	-8.32	-11.39	0.23	-11.66	-5.13	-15.30	0.05	-10.41	-4.19	-35.00	0.12	-11.31
	Structural break at obs.	-	-	-	116	-	-	-	219	-	-	-	548
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Nether-lands / France	Number observations	154	155	156	152	312	312	312	308	220	220	220	217
	Lags	1	1	10	3	8	8	11	4	13	13	15	3
	Test statistic: z(t)	-8.50	-12.60	0.32	-7.15	-5.50	-15.91	0.04	-9.39	-3.48	-13.23	0.06	-14.62
	Structural break at obs.	-	-	-	115	-	-	-	219	-	-	-	507
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Portugal / France	Number observations	153	155	156	153	312	312	312	309	220	220	220	217
	Lags	2	2	20	2	1	1	13	3	13	13	11	3
	Test statistic: z(t)	-8.03	-10.84	0.51	-8.63	-13.30	-17.47	0.10	-10.04	-2.92	-16.70	0.45	-13.46
	Structural break at obs.	-	-	-	120	-	-	-	391	-	-	-	603
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	**H1**	H1	H1	H1	H0	H1	H1	H1	H0	H1
Spain / France	Number observations	154	155	156	155	312	312	312	312	220	220	220	217
	Lags	1	1	79	0	2	2	10	0	13	13	15	3
	Test statistic: z(t)	-8.76	-11.48	0.31	-11.81	-10.93	-19.45	0.07	-19.53	-2.79	-11.78	0.51	-13.25
	Structural break at obs.	-	-	-	89	-	-	-	387	-	-	-	587
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Greece / Germany	Number observations	148	155	156	155	312	312	312	309	220	220	220	217
	Lags	7	7	14	0	5	5	18	3	13	13	12	3
	Test statistic: z(t)	-3.91	-12.24	0.28	-12.82	-8.75	-16.65	0.08	-11.61	-3.56	-18.26	0.36	-18.08
	Structural break at obs.	-	-	-	116	-	-	-	268	-	-	-	626
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Ireland / Germany	Number observations	154	155	156	155	312	312	312	309	220	220	220	220
	Lags	1	1	12	0	11	11	20	3	13	13	21	0
	Test statistic: z(t)	-8.86	-12.29	0.13	-12.41	-4.21	-17.51	0.11	-10.27	-2.39	-18.22	0.58	-20.05
	Structural break at obs.	-	-	-	95	-	-	-	227	-	-	-	582
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Italy / Germany	Number observations	152	155	156	155	312	312	312	309	220	220	220	217
	Lags	3	3	8	0	1	1	14	3	13	13	3	3
	Test statistic: z(t)	-5.35	-10.28	0.28	-10.66	-12.40	-16.61	0.11	-9.36	-2.66	-23.00	0.60	-10.33
	Structural break at obs.	-	-	-	26	-	-	-	376	-	-	-	577
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Luxem-bourg / Germany	Number observations	150	155	156	152	312	312	312	309	220	220	220	217
	Lags	5	5	4	3	2	2	11	3	13	13	8	3
	Test statistic: z(t)	-6.04	-9.87	0.06	-7.33	-9.18	-15.82	0.04	-7.77	-4.07	-30.68	0.25	-13.57
	Structural break at obs.	-	-	-	114	-	-	-	283	-	-	-	592
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Nether-lands / Germany	Number observations	154	155	156	155	312	312	312	310	220	220	220	217
	Lags	1	1	42	0	13	13	12	2	13	13	13	3
	Test statistic: z(t)	-8.54	-12.37	0.15	-12.81	-5.17	-17.97	0.12	-11.91	-3.40	-16.74	0.17	-12.97
	Structural break at obs.	-	-	-	110	-	-	-	207	-	-	-	586
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Germany	Number observations	154	155	156	153	312	312	312	311	220	220	220	217
	Lags	1	1	16	2	3	3	11	1	13	13	13	3
	Test statistic: z(t)	-8.78	-11.57	0.25	-8.89	-9.85	-17.74	0.07	-14.07	-2.28	-15.24	0.49	-15.94
	Structural break at obs.	-	-	-	114	-	-	-	390	-	-	-	603
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Spain / Germany	Number observations	154	155	156	155	312	312	312	312	220	220	220	217
	Lags	1	1	6	0	1	1	7	0	13	13	15	3
	Test statistic: z(t)	-8.02	-11.40	0.17	-12.08	-12.76	-18.56	0.09	-18.66	-2.38	-12.81	0.64	-18.29
	Structural break at obs.	-	-	-	95	-	-	-	376	-	-	-	638
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Ireland / Greece	Number observations	148	155	156	153	312	312	312	309	220	220	220	217
	Lags	7	7	11	2	5	5	15	3	13	13	8	3
	Test statistic: z(t)	-4.17	-13.22	0.09	-8.79	-8.25	-16.80	0.19	-11.49	-2.78	-16.98	0.25	-17.35
	Structural break at obs.	-	-	-	103	-	-	-	315	-	-	-	613
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H0	H1	H0	H1
Italy / Greece	Number observations	148	155	156	153	312	312	312	309	220	220	220	217
	Lags	7	7	9	2	5	5	4	3	13	13	10	3
	Test statistic: z(t)	-4.41	-14.58	0.10	-8.98	-7.27	-17.86	0.09	-10.69	-3.91	-19.73	0.21	-18.33
	Structural break at obs.	-	-	-	60	-	-	-	327	-	-	-	618
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Luxem-bourg / Greece	Number observations	146	155	156	155	312	312	312	309	220	220	220	217
	Lags	9	9	24	0	13	13	21	3	13	13	6	3
	Test statistic: z(t)	-4.24	-11.92	0.33	-12.23	-5.19	-17.45	0.08	-10.76	-3.36	-27.59	0.19	-12.40
	Structural break at obs.	-	-	-	133	-	-	-	271	-	-	-	614
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Nether-lands / Greece	Number observations	153	155	156	153	312	312	312	309	220	220	220	217
	Lags	2	2	9	2	5	5	13	3	13	13	13	3
	Test statistic: z(t)	-8.25	-13.89	0.31	-8.64	-8.51	-18.07	0.10	-11.61	-3.09	-15.55	0.20	-18.78
	Structural break at obs.	-	-	-	126	-	-	-	227	-	-	-	622
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Greece	Number observations	142	155	156	153	312	312	312	308	220	220	220	217
	Lags	13	13	11	2	13	13	13	4	13	13	9	3
	Test statistic: z(t)	-3.19	-13.02	0.57	-8.83	-5.72	-19.48	0.05	-11.30	-3.74	-18.79	0.21	-14.71
	Structural break at obs.	-	-	-	90	-	-	-	284	-	-	-	613
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H1	H1	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Greece	Number observations	151	155	156	153	312	312	312	311	220	220	220	217
	Lags	4	4	13	2	3	3	9	1	13	13	7	3
	Test statistic: z(t)	-6.22	-12.96	0.10	-8.64	-10.43	-20.04	0.17	-15.59	-3.79	-24.60	0.12	-11.65
	Structural break at obs.	-	-	-	72	-	-	-	284	-	-	-	610
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Italy / Ireland	Number observations	154	155	156	155	312	312	312	308	220	220	220	217
	Lags	1	1	7	0	8	8	40	4	13	13	11	3
	Test statistic: z(t)	-8.50	-11.67	0.05	-12.17	-8.02	-19.43	0.16	-10.24	-2.47	-15.89	0.53	-7.28
	Structural break at obs.	-	-	-	97	-	-	-	271	-	-	-	582
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Luxem-bourg / Ireland	Number observations	154	155	156	155	312	312	312	309	220	220	220	217
	Lags	1	1	26	0	13	13	131	3	13	13	4	3
	Test statistic: z(t)	-8.68	-11.59	0.16	-12.06	-4.48	-18.28	0.15	-10.11	-2.00	-22.87	0.60	-7.39
	Structural break at obs.	-	-	-	97	-	-	-	227	-	-	-	579
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1
Nether-lands / Ireland	Number observations	154	155	156	155	312	312	312	309	220	220	220	218
	Lags	1	1	10	0	13	13	91	3	13	13	16	2
	Test statistic: z(t)	-9.60	-12.91	0.16	-13.23	-4.66	-18.56	0.12	-9.95	-2.60	-11.71	0.46	-14.33
	Structural break at obs.	-	-	-	97	-	-	-	221	-	-	-	586
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	**H1**	H1

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Portugal / Ireland	Number observations	154	155	156	155	312	312	312	308	220	220	220	217
	Lags	1	1	4	0	13	13	3	4	13	13	11	3
	Test statistic: z(t)	-8.58	-11.35	0.26	-11.84	-4.22	-18.83	0.15	-10.91	-3.03	-15.24	0.48	-15.09
	Structural break at obs.	-	-	-	97	-	-	-	210	-	-	-	585
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	**H1**	H1
Spain / Ireland	Number observations	143	155	156	153	312	312	312	308	220	220	220	218
	Lags	12	12	9	2	13	13	1	4	13	13	13	2
	Test statistic: z(t)	-2.97	-10.69	0.10	-5.89	-4.99	-19.88	0.06	-10.11	-2.56	-15.05	0.28	-16.21
	Structural break at obs.	-	-	-	96	-	-	-	313	-	-	-	637
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	**H0**	H1	H0	H1
Luxem-bourg / Italy	Number observations	153	155	156	155	312	312	312	309	220	220	220	217
	Lags	2	2	9	0	5	5	15	3	13	13	7	3
	Test statistic: z(t)	-6.03	-10.63	0.44	-11.01	-7.72	-17.34	0.13	-9.29	-4.71	-35.93	0.04	-12.38
	Structural break at obs.	-	-	-	41	-	-	-	227	-	-	-	536
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Nether-lands / Italy	Number observations	154	155	156	155	312	312	312	309	220	220	220	217
	Lags	1	1	6	0	4	4	19	3	13	13	16	3
	Test statistic: z(t)	-8.62	-13.89	0.32	-14.25	-7.84	-17.75	0.15	-8.89	-3.71	-13.30	0.13	-12.52
	Structural break at obs.	-	-	-	26	-	-	-	229	-	-	-	511
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Italy	Number observations	154	155	156	153	312	312	312	308	220	220	220	217
	Lags	1	1	15	2	10	10	7	4	13	13	13	3
	Test statistic: z(t)	-8.65	-11.55	0.54	-8.98	-4.58	-18.10	0.12	-9.54	-2.77	-14.82	0.18	-16.64
	Structural break at obs.	-	-	-	68	-	-	-	324	-	-	-	572
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	**H1**	H1	H1	H1	H0	H1	**H0**	H1	H0	H1
Spain / Italy	Number observations	154	155	156	155	312	312	312	309	220	220	220	217
	Lags	1	1	11	0	2	2	10	3	13	13	15	3
	Test statistic: z(t)	-9.00	-12.32	0.08	-12.83	-9.92	-19.56	0.17	-9.85	-3.53	-12.79	0.27	-14.34
	Structural break at obs.	-	-	-	89	-	-	-	234	-	-	-	583
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1

Unit Root Tests of the First Differences of the Real Exchange Rate													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Test		ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA	ADF	PP	KPSS	ZA
Nether-lands / Luxem-bourg	Number observations	142	155	156	152	312	312	312	312	220	220	220	217
	Lags	13	13	7	3	1	1	22	0	13	13	13	3
	Test statistic: z(t)	-4.14	-14.60	0.04	-7.16	-12.82	-16.89	0.09	-17.20	-4.76	-18.18	0.06	-15.89
	Structural break at obs.	-	-	-	28	-	-	-	274	-	-	-	524
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Luxem-bourg	Number observations	151	155	156	153	312	312	312	309	220	220	220	217
	Lags	4	4	12	2	1	1	13	3	13	13	7	3
	Test statistic: z(t)	-6.58	-12.04	0.33	-10.11	-13.63	-17.71	0.08	-10.39	-4.06	-29.62	0.14	-11.75
	Structural break at obs.	-	-	-	80	-	-	-	227	-	-	-	572
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Luxem-bourg	Number observations	154	155	156	155	312	312	312	312	220	220	220	217
	Lags	1	1	1	0	1	1	12	0	13	13	10	3
	Test statistic: z(t)	-8.73	-11.55	0.18	-12.05	-12.61	-18.35	0.09	-18.49	-3.42	-21.97	0.34	-16.67
	Structural break at obs.	-	-	-	89	-	-	-	219	-	-	-	590
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Portugal / Nether-lands	Number observations	145	155	156	152	312	312	312	308	220	220	220	217
	Lags	10	10	12	3	13	13	11	4	13	13	15	3
	Test statistic: z(t)	-5.24	-13.96	0.20	-9.66	-4.12	-17.84	0.13	-9.83	-2.95	-13.04	0.19	-14.56
	Structural break at obs.	-	-	-	124	-	-	-	392	-	-	-	586
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Nether-lands	Number observations	154	155	156	155	312	312	312	312	220	220	220	218
	Lags	1	1	10	0	1	1	10	0	13	13	16	2
	Test statistic: z(t)	-9.12	-12.30	0.18	-12.68	-13.35	-18.69	0.08	-18.85	-3.18	-10.38	0.30	-19.42
	Structural break at obs.	-	-	-	89	-	-	-	377	-	-	-	586
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1
Spain / Portugal	Number observations	154	155	156	155	312	312	312	308	220	220	220	218
	Lags	1	1	3	0	10	10	14	4	13	13	12	2
	Test statistic: z(t)	-8.27	-11.64	0.30	-12.25	-5.20	-17.40	0.23	-10.55	-3.50	-20.66	0.13	-12.93
	Structural break at obs.	-	-	-	90	-	-	-	239	-	-	-	530
	5% significance level	-2.89	-2.89	0.46	-4.80	-2.88	-2.88	0.46	-4.80	-2.88	-2.88	0.46	-4.80
	10% significance level	-2.58	-2.58	0.35	-4.58	-2.57	-2.57	0.35	-4.58	-2.57	-2.57	0.35	-4.58
	Accepted Hypothesis	H1	H1	H0	H1	H1	H1	H0	H1	H1	H1	H0	H1

Legend Appendix Table 10: The significance level for the rejection of the H0 is 5%. The table displays the results for seasonally unadjusted monthly first differences of real exchange rates. ADF: Augmended Dickey-Fuller Test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags chosen according to Akaike's information criterion (AIC). PP: Phillips–Perron test (H0 = unit root possibly with drift, H1 = stationary around linear trend), lags are Newey-West lags and chosen according to Akaike's information criterion (AIC). Critical values for the PP are the same as for the ADF. KPSS: Kwiatkowski-Phillips-Schmidt-Shin test for stationarity (H0 = stationary around linear trend, H1 = unit root). ZA: Zivot-Andrews Unit Root test allowing for a single break in intercept or trend (H0 = unit root, H1 stationarity with a break in the intercept or trend).

DOI https://doi.org/10.3790/ccm.52.2.A1 | Generated on 2024-07-03 17:16:30

Appendix Table 11 – Augmented Engle-Granger Cointegration Tests of Real Exchange Rates

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
Belgium / Austria	Number observations	156	156	299	308	195	195
	Lags	0	0	12	3	24	24
	Test statistic: z(t)	-3.10	-3.52	-3.13	-2.43	-2.34	-2.32
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Finland / Austria	Number observations	156	156	298	298	207	204
	Lags	0	0	13	13	12	15
	Test statistic: z(t)	-2.15	-2.39	-2.31	-1.49	-2.57	-2.04
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
France / Austria	Number observations	155	154	299	311	212	207
	Lags	1	2	12	0	7	12
	Test statistic: z(t)	-3.20	-4.58	-3.90	-2.97	-0.99	-0.78
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	**H1**	H0	H0	H0	H0
Germany / Austria	Number observations	156	156	299	299	207	206
	Lags	0	0	12	12	12	13
	Test statistic: z(t)	-3.47	-3.86	-2.36	-2.00	-1.15	-1.43
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	**H1**	**H1**	H0	H0	H0	H0
Greece / Austria	Number observations	144	150	299	305	204	204
	Lags	12	6	12	6	15	15
	Test statistic: z(t)	-3.34	-3.55	-3.28	-2.01	-1.29	-1.44
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Ireland / Austria	Number observations	153	153	287	307	207	203
	Lags	3	3	24	4	12	16
	Test statistic: z(t)	-2.41	-2.46	-3.04	-1.25	-1.72	-1.30
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
Italy / Austria	Number observations	155	156	299	290	207	207
	Lags	1	0	12	21	12	12
	Test statistic: z(t)	-1.56	-2.67	-2.78	-1.41	-1.47	-1.22
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Luxembourg / Austria	Number observations	156	156	299	299	207	206
	Lags	0	0	12	12	12	13
	Test statistic: z(t)	-3.06	-3.39	-4.01	-3.03	-1.29	-0.95
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Netherlands / Austria	Number observations	155	155	299	309	207	207
	Lags	1	1	12	2	12	12
	Test statistic: z(t)	-4.33	-5.14	-0.30	-2.60	-2.53	-2.50
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	**H1**	**H1**	H0	H0	H0	H0
Portugal / Austria	Number observations	155	144	311	311	207	207
	Lags	1	12	0	0	12	12
	Test statistic: z(t)	-2.79	-1.72	-3.10	-3.12	-2.09	-2.17
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / Austria	Number observations	155	156	285	307	207	205
	Lags	1	0	26	4	12	14
	Test statistic: z(t)	-2.84	-2.45	-3.66	-1.30	-1.14	-1.18
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Finland / Belgium	Number observations	156	156	299	299	199	199
	Lags	0	0	12	12	20	20
	Test statistic: z(t)	-2.03	-1.56	-2.37	-1.84	-3.12	-3.09
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
France / Belgium	Number observations	156	156	299	299	195	195
	Lags	0	0	12	12	24	24
	Test statistic: z(t)	-1.51	-2.33	-4.19	-2.37	-1.98	-1.66
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	**H1**	H0	H0	H0
Germany / Belgium	Number observations	152	155	310	311	206	206
	Lags	4	1	1	0	13	13
	Test statistic: z(t)	-1.50	-2.81	-1.59	-1.18	-3.45	-3.77
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	**H1**	H0	H0
Greece / Belgium	Number observations	150	150	299	307	193	195
	Lags	6	6	12	4	26	24
	Test statistic: z(t)	-4.51	-4.65	-3.23	-2.21	-1.68	-1.24
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	**H1**	**H1**	H0	H0	H0	H0
Ireland / Belgium	Number observations	155	155	299	299	219	199
	Lags	1	1	12	12	0	20
	Test statistic: z(t)	-2.15	-2.18	-3.44	-1.34	-2.14	-1.08
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Italy / Belgium	Number observations	155	156	290	290	219	219
	Lags	1	0	21	21	0	0
	Test statistic: z(t)	-1.66	-1.87	-3.52	-4.08	-1.80	-1.24
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	**H1**	H0	H0
Luxembourg / Belgium	Number observations	156	156	311	311	193	194
	Lags	0	0	0	0	26	25
	Test statistic: z(t)	-3.99	-3.62	-2.79	-3.05	-2.38	-1.94
	5% significance level	-3.84	-3.38	-3.81	-3.36	-3.82	-3.36
	10% significance level	-3.54	-3.07	-3.52	-3.06	-3.53	-3.06
	Decision	**H1**	**H1**	H0	H0	H0	H0

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
Netherlands / Belgium	Number observations	154	154	295	295	207	207
	Lags	2	2	16	16	12	12
	Test statistic: z(t)	-4.75	-4.79	-1.13	-1.39	-2.85	-2.99
	Structural break at obs.						
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	**H1**	**H1**	H0	H0	H0	H0
Portugal / Belgium	Number observations	144	153	311	311	207	206
	Lags	12	3	0	0	12	13
	Test statistic: z(t)	-1.57	-1.78	-2.54	-2.43	-2.34	-2.46
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / Belgium	Number observations	154	155	310	310	205	205
	Lags	2	1	1	1	14	14
	Test statistic: z(t)	-2.36	-1.60	-1.98	-2.09	-1.72	-0.88
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
France / Finland	Number observations	156	156	310	309	207	207
	Lags	0	0	1	2	12	12
	Test statistic: z(t)	-0.35	-0.95	-2.40	-2.42	-1.50	-2.49
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Germany / Finland	Number observations	144	154	298	299	205	195
	Lags	12	2	13	12	14	24
	Test statistic: z(t)	-1.43	-1.24	-2.99	-2.22	-1.55	-2.34
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Greece / Finland	Number observations	150	150	299	310	207	207
	Lags	6	6	12	1	12	12
	Test statistic: z(t)	-2.43	-2.53	-2.75	-1.84	-1.97	-2.20
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
Ireland / Finland	Number observations	155	156	299	299	206	207
	Lags	1	0	12	12	13	12
	Test statistic: z(t)	0.20	0.22	-1.83	-2.01	-1.79	-2.20
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Italy / Finland	Number observations	156	156	310	299	207	207
	Lags	0	0	1	12	12	12
	Test statistic: z(t)	-2.83	-2.98	-3.03	-2.38	-1.88	-2.49
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Luxembourg / Finland	Number observations	151	156	297	299	204	207
	Lags	5	0	14	12	15	12
	Test statistic: z(t)	-1.25	-1.38	-3.41	-2.55	-1.14	-2.54
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Netherlands / Finland	Number observations	156	156	299	299	207	207
	Lags	0	0	12	12	12	12
	Test statistic: z(t)	-2.76	-2.05	-1.65	-1.56	-2.62	-2.63
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Portugal / Finland	Number observations	150	156	311	308	205	195
	Lags	6	0	0	3	14	24
	Test statistic: z(t)	-0.50	-1.03	-2.76	-2.46	-2.28	-2.57
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / Finland	Number observations	156	156	306	310	207	207
	Lags	0	0	5	1	12	12
	Test statistic: z(t)	-3.48	-3.57	-2.37	-2.73	-1.50	-2.05
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
Germany / France	Number observations	154	154	310	311	206	207
	Lags	2	2	1	0	13	12
	Test statistic: z(t)	-1.65	-2.06	-2.59	-1.59	-3.38	-1.12
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	**H1**	H0	H0
Greece / France	Number observations	150	150	299	311	207	207
	Lags	6	6	12	0	12	12
	Test statistic: z(t)	-2.87	-2.84	-3.47	-3.44	-3.03	-1.28
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Ireland / France	Number observations	156	156	305	305	207	207
	Lags	0	0	6	6	12	12
	Test statistic: z(t)	-1.49	-1.09	-2.65	-2.19	-2.75	-2.34
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Italy / France	Number observations	155	156	311	311	196	196
	Lags	1	0	0	0	23	23
	Test statistic: z(t)	-2.12	-2.09	-4.21	-2.54	-1.64	-1.57
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	**H1**	H0	H0	H0
Luxembourg / France	Number observations	144	144	297	307	206	206
	Lags	12	12	14	4	13	13
	Test statistic: z(t)	-2.50	-2.93	-4.63	-1.47	-2.67	-1.61
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	**H1**	H0	H0	H0
Netherlands / France	Number observations	156	156	304	305	207	207
	Lags	0	0	7	6	12	12
	Test statistic: z(t)	-3.71	-3.57	-2.49	-2.24	-3.21	-2.17
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
Portugal / France	Number observations	156	156	311	311	207	207
	Lags	0	0	0	0	12	12
	Test statistic: z(t)	-2.17	-1.97	-2.64	-1.85	-3.21	-3.28
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / France	Number observations	155	156	311	311	206	207
	Lags	1	0	0	0	13	12
	Test statistic: z(t)	-2.73	-1.09	-1.98	-2.15	-2.84	-1.56
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Greece / Germany	Number observations	150	150	301	305	196	203
	Lags	6	6	10	6	23	16
	Test statistic: z(t)	-3.12	-3.09	-2.75	-2.68	-1.38	-1.36
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Ireland / Germany	Number observations	156	155	308	309	196	195
	Lags	0	1	3	2	23	24
	Test statistic: z(t)	-2.52	-2.95	-2.28	-1.72	-1.45	-1.65
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Italy / Germany	Number observations	155	155	311	311	206	206
	Lags	1	1	0	0	13	13
	Test statistic: z(t)	-1.63	-1.97	-1.55	-1.41	-2.43	-1.88
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Luxembourg / Germany	Number observations	153	144	311	311	206	206
	Lags	3	12	0	0	13	13
	Test statistic: z(t)	-3.30	-3.14	-1.86	-1.74	-2.96	-2.68
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
Netherlands / Germany	Number observations	156	156	310	311	204	206
	Lags	0	0	1	0	15	13
	Test statistic: z(t)	-4.32	-3.45	-3.03	-3.22	-2.88	-2.76
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	**H1**	H0	H0	H0	H0	H0
Portugal / Germany	Number observations	156	156	311	311	207	207
	Lags	0	0	0	0	12	12
	Test statistic: z(t)	-2.63	-2.48	-2.99	-2.89	-2.64	-2.52
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / Germany	Number observations	156	156	311	311	196	207
	Lags	0	0	0	0	23	12
	Test statistic: z(t)	-3.24	-0.74	-1.99	-1.99	-1.15	-1.06
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Ireland / Greece	Number observations	144	144	301	309	207	207
	Lags	12	12	10	2	12	12
	Test statistic: z(t)	-1.76	-2.74	-1.78	-1.99	-3.50	-3.51
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	**H1**
Italy / Greece	Number observations	155	150	299	299	206	207
	Lags	1	6	12	12	13	12
	Test statistic: z(t)	-1.09	-2.54	-2.46	-1.36	-4.50	-1.07
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	**H1**	H0
Luxembourg / Greece	Number observations	147	150	299	299	202	206
	Lags	9	6	12	12	17	13
	Test statistic: z(t)	-3.25	-4.25	-4.14	-3.32	-2.46	-1.13
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	**H1**	H0	H0	H0	H0

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
Netherlands / Greece	Number observations	156	150	305	307	207	207
	Lags	0	6	6	4	12	12
	Test statistic: z(t)	-4.94	-3.48	-2.22	-2.05	-3.52	-1.49
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	**H1**	H0	H0	H0	H0	H0
Portugal / Greece	Number observations	156	146	299	299	207	207
	Lags	0	10	12	12	12	12
	Test statistic: z(t)	-2.90	-1.58	-3.57	-2.54	-3.16	-1.81
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / Greece	Number observations	156	150	304	311	207	207
	Lags	0	6	7	0	12	12
	Test statistic: z(t)	-2.25	-2.31	-2.55	-2.11	-2.72	-1.47
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Italy / Ireland	Number observations	156	156	304	306	207	203
	Lags	0	0	7	5	12	16
	Test statistic: z(t)	-1.19	-1.04	-1.68	-2.13	-2.75	-1.08
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Luxembourg / Ireland	Number observations	155	154	299	301	202	203
	Lags	1	2	12	10	17	16
	Test statistic: z(t)	-3.26	-2.66	-2.88	-1.28	-1.49	-0.93
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Netherlands / Ireland	Number observations	156	151	299	299	207	206
	Lags	0	5	12	12	12	13
	Test statistic: z(t)	-5.39	-2.67	-1.73	-0.76	-2.93	-1.25
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	**H1**	H0	H0	H0	H0	H0

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
Portugal / Ireland	Number observations	156	156	305	307	207	207
	Lags	0	0	6	4	12	12
	Test statistic: z(t)	-3.60	-3.21	-1.51	-1.12	-2.92	-1.57
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / Ireland	Number observations	155	155	302	302	207	205
	Lags	1	1	9	9	12	14
	Test statistic: z(t)	-2.52	-1.16	-3.02	-1.39	-2.11	-1.89
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Luxembourg / Italy	Number observations	155	153	310	310	195	195
	Lags	1	3	1	1	24	24
	Test statistic: z(t)	-2.95	-2.04	-2.12	-2.12	-2.70	-1.60
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Netherlands / Italy	Number observations	156	156	299	299	207	207
	Lags	0	0	12	12	12	12
	Test statistic: z(t)	-3.05	-2.01	-2.18	-2.38	-2.95	-1.87
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Portugal / Italy	Number observations	152	156	311	311	207	207
	Lags	4	0	0	0	12	12
	Test statistic: z(t)	-0.50	-0.98	-2.85	-1.75	-3.08	-3.00
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / Italy	Number observations	156	156	302	301	201	201
	Lags	0	0	9	10	18	18
	Test statistic: z(t)	-2.00	-1.86	-2.72	-2.51	-1.87	-0.97
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0

Augmented Engle-Granger Cointegration Tests for Real Exchange Rate Components							
Period		1960:1 - 1972:12		1973:1 - 1998:12		1999:1 - 2017:5	
Test		With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend
Netherlands / Luxembourg	Number observations	153	156	299	299	204	204
	Lags	3	0	12	12	15	15
	Test statistic: z(t)	-5.56	-5.16	-1.69	-1.81	-3.35	-2.69
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	**H1**	**H1**	H0	H0	H0	H0
Portugal / Luxembourg	Number observations	153	153	311	311	196	205
	Lags	3	3	0	0	23	14
	Test statistic: z(t)	-2.15	-1.98	-2.71	-2.20	-2.16	-2.77
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / Luxembourg	Number observations	154	150	309	309	206	207
	Lags	2	6	2	2	13	12
	Test statistic: z(t)	-2.51	-0.97	-1.74	-1.76	-1.76	-1.12
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Portugal / Netherlands	Number observations	153	153	311	311	207	207
	Lags	3	3	0	0	12	12
	Test statistic: z(t)	-3.07	-1.94	-2.64	-2.05	-1.73	-1.70
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / Netherlands	Number observations	155	156	305	311	203	207
	Lags	1	0	6	0	16	12
	Test statistic: z(t)	-2.92	-2.11	-0.88	-1.79	-1.72	-1.24
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0
Spain / Portugal	Number observations	155	153	311	311	207	207
	Lags	1	3	0	0	12	12
	Test statistic: z(t)	-3.01	-0.93	-2.58	-2.31	-2.38	-2.77
	5% significance level	-4.20	-3.80	-4.16	-3.77	-3.82	-3.36
	10% significance level	-3.89	-3.49	-3.86	-3.47	-3.53	-3.06
	Decision	H0	H0	H0	H0	H0	H0

Appendix Table 12 – Johannsen Cointegration Tests of Real Exchange Rates

Johansen Cointegration Tests for Real Exchange Rate Components													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Belgium / Austria	Number observations	154				311				221			
	Lags	3				13				13			
	Cointegration rank at significance level 5%	-				0				0			
	Trace statistics	52.202	27.991	6.680		**15.929**	7.249	0.886		**10.670**	1.117	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.737	0.737	1.000	1.000	0.978	0.978	1.000	0.963	0.963	0.955
	Cointegration vector	CPI(AUT)	CPI(BEL)	e(AUT/BEL)	Constant	CPI(AUT)	CPI(BEL)	e(AUT/BEL)	Constant	CPI(AUT)	CPI(BEL)	e(AUT/BEL)	Constant
	Coefficient	1.000	-1.025	13.494	-5.813	1.000	-1.242	-0.533	1.075	1.000	-0.965	-	-0.187
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.003	0.001	-0.017		0.007	0.009	0.004		-0.055	0.022	-	
	Economically sensible	Yes	Yes	-	-	No	Yes	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	2				1				1			
	Jarque-Bera: p-value	0.000				0.000				0.176			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.000**	**0.0**		ARCH(1)	0.164	0.4		ARCH(1)	**0.000**	**0.0**	
		GARCH(1)	**0.000**			)	0.701			GARCH(1)	0.126		
	CPI(BEL)	ARCH(1)	0.082	**0.000**		ARCH(1)	0.137	0.215		ARCH(1)	**0.044**	**0.000**	
		GARCH(1)	**0.000**			)	0.649			GARCH(1)	**0.004**		
	e(AUT/BEL)	ARCH(1)	0.082	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	0.126			GARCH(1)	-		
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Finland / Austria	Number observations	155				311				221			
	Lags	2				13				13			
	Cointegration rank at significance level 5%	0				2				0			
	Trace statistics	**12.189**	5.288	0.887		46.143	18.908	**0.808**		**11.085**	0.313	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.932	0.166	1.221	1.221	1.064	1.064	1.000	0.954	0.952	0.952
	Cointegration vector	CPI(AUT)	CPI(FIN)	e(AUT/FIN)	Constant	CPI(AUT)	CPI(FIN)	e(AUT/FIN)	Constant	CPI(AUT)	CPI(FIN)	e(AUT/FIN)	Constant
	Coefficient	1.000	-0.531	0.211	-2.058	1.000	-0.525	3.420	-1.908	1.000	-1.232	-	1.070
	Economically sensible	Yes	Yes	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	-0.024	0.027	-0.108		-0.001	0.002	-0.011		-0.007	0.039	-	
	Economically sensible	Yes	Yes	-	-	Yes	Yes	-	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	3				3				1			
	Jarque-Bera: p-value	0.000				0.000				0.001			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.006**	**0.005**		ARCH(1)	**0.036**	0.058		ARCH(1)	**0.027**	0.056	
		GARCH(1)	0.338			)	0.430			GARCH(1)	0.626		
	CPI(FIN)	ARCH(1)	**0.006**	**0.000**		ARCH(1)	**0.020**	**0.000**		ARCH(1)	**0.027**	0.898	
		GARCH(1)	0.338			)	**0.000**			GARCH(1)	0.626		
	e(AUT/FIN)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.016**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
France / Austria	Number observations	156				311				221			
	Lags	1				13				14			
	Cointegration rank at significance level 5%	0				1				0			
	Trace statistics	**27.402**	11.201	3.699		56.589	**13.488**	0.816		**9.620**	1.615	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.934	0.952	1.099	1.099	1.091	1.091	1.005	1.000	0.964	0.964
	Cointegration vector	CPI(AUT)	CPI(FRA)	e(AUT/FRA)	Constant	CPI(AUT)	CPI(FRA)	e(AUT/FRA)	Constant	CPI(AUT)	CPI(FRA)	e(AUT/FRA)	Constant
	Coefficient	1.000	-1.083	-0.298	-0.076	1.000	-1.245	-1.478	1.045	1.000	-0.822	-	-0.906
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.072	-0.031	0.092		-0.005	-0.008	0.096		-0.001	-0.010	-	
	Economically sensible	Yes	No	Yes	-	Yes	No	Yes	-	Yes	No	-	-
	VECM residual auto-correlation at lag	1				2				1			
	Jarque-Bera: p-value	0.000				0.000				0.001			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.002**	**0.003**		ARCH(1)	0.142	0.323		ARCH(1)	0.140	0.312	
		GARCH(1)	0.578			)	0.778			GARCH(1)	0.731		
	CPI(FRA)	ARCH(1)	0.138	0.258		ARCH(1)	0.054	**0.000**		ARCH(1)	0.837	0.871	
		GARCH(1)	0.565			)	0.059			GARCH(1)	0.806		
	e(AUT/FRA)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.017**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Germany / Austria	Number observations	151				311				221			
	Lags	6				13				20			
	Cointegration rank at significance level 5%	1				-				0			
	Trace statistics	39.103	**13.597**	1.446		47.171	17.834	4.188		**6.582**	2.396	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.968	0.768	1.000	1.000	0.956	0.936	1.000	0.987	0.987	0.964
	Cointegration vector	CPI(AUT)	CPI(GER)	e(AUT/GER)	Constant	CPI(AUT)	CPI(GER)	e(AUT/GER)	Constant	CPI(AUT)	CPI(GER)	e(AUT/GER)	Constant
	Coefficient	1.000	-0.736	-3.550	-1.123	1.000	-0.892	3.994	-0.463	1.000	-1.326	-	1.468
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	-0.012	-0.011	0.005		-0.007	0.013	-0.032		-0.030	0.014	-	
	Economically sensible	Yes	No	Yes	-	Yes	Yes	-	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	1				3				3			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.155	0.223		ARCH(1)	**0.027**	**0.027**	
		GARCH(1)	**0.011**			)	0.473			GARCH(1)	0.501		
	CPI(GER)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.002**	**0.000**		ARCH(1)	0.621	0.855	
		GARCH(1)	**0.011**			)	**0.000**			GARCH(1)	0.910		
	e(AUT/GER)	ARCH(1)	**0.001**	**0.002**		ARCH(1)	**0.006**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.436			)	**0.007**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Greece / Austria	Number observations	153				311				221			
	Lags	4				15				13			
	Cointegration rank at significance level 5%					1				0			
	Trace statistics	**25.029**	11.852	2.607		33.199	**13.516**	5.548		**6.522**	2.256	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.992	0.604	1.060	1.060	1.049	1.049	1.001	1.000	0.965	0.960
	Cointegration vector	CPI(AUT)	CPI(GRC)	e(AUT/GRC)	Constant	CPI(AUT)	CPI(GRC)	e(AUT/GRC)	Constant	CPI(AUT)	CPI(GRC)	e(AUT/GRC)	Constant
	Coefficient	1.000	-1.435	-1.029	0.461	1.000	-0.548	-0.464	-2.171	1.000	-0.272	-	-3.461
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.007	0.055	-0.005		-0.016	-0.003	0.069		0.000	-0.011	-	
	Economically sensible	No	Yes	No	-	Yes	No	Yes	-	Yes	No	-	-
	VECM residual auto-correlation at lag	2				4				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.363	0.372		ARCH(1)	**0.000**	**0.000**	
		GARCH(1)	**0.000**			)	0.515			GARCH(1)	**0.000**		
	CPI(GRC)	ARCH(1)	0.651	**0.023**		ARCH(1)	0.184	**0.000**		ARCH(1)	0.143	**0.002**	
		GARCH(1)	0.151			)	**0.000**			GARCH(1)	0.253		
	e(AUT/GRC)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Ireland / Austria	Number observations	155				311				221			
	Lags	2				13				14			
	Cointegration rank at significance level 5%	0				0				0			
	Trace statistics	**26.267**	14.991	5.075		**28.755**	8.949	0.242		**9.767**	1.530	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.007	1.000	1.000	0.136	1.004	1.004	1.000	1.000	1.000	0.994	0.971	0.964
	Cointegration vector	CPI(AUT)	CPI(IRL)	e(AUT/IRL)	Constant	CPI(AUT)	CPI(IRL)	e(AUT/IRL)	Constant	CPI(AUT)	CPI(IRL)	e(AUT/IRL)	Constant
	Coefficient	1.000	-0.173	-2.091	0.600	1.000	5.131	22.544	-25.067	1.000	-4.136	-	14.584
	Economically sensible	Yes	Yes	Yes	-	Yes	No	No	-	Yes	Yes	-	-
	Adjustment factor	0.000	0.003	-0.003		0.000	0.001	-0.002		-0.001	0.001	-	
	Economically sensible	Yes	Yes	No	-	No	-	-	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	3				3				2			
	Jarque-Bera: p-value	0.000				0.000				0.005			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.003**	**0.004**		ARCH(1)	0.479	0.079		ARCH(1)	0.146	**0.000**	
		GARCH(1)	0.352			)	0.080			GARCH(1)	**0.000**		
	CPI(IRL)	ARCH(1)	0.810	0.967		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.145	0.227	
		GARCH(1)	0.995			)	**0.000**			GARCH(1)	0.610		
	e(AUT/IRL)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.026**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Italy / Austria	Number observations	155				311				221			
	Lags	2				15				24			
	Cointegration rank at significance level 5%	0				0				0			
	Trace statistics	**20.364**	9.128	2.689		**28.199**	12.527	1.289		**12.758**	2.091	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.910	0.144	1.308	1.308	1.051	1.051	1.000	0.998	0.998	0.996
	Cointegration vector	CPI(AUT)	CPI(ITA)	e(AUT/ITA)	Constant	CPI(AUT)	CPI(ITA)	e(AUT/ITA)	Constant	CPI(AUT)	CPI(ITA)	e(AUT/ITA)	Constant
	Coefficient	1.000	-0.696	3.259	-7.742	1.000	2.863	-6.020	-17.817	1.000	4.434	-	-23.982
	Economically sensible	Yes	Yes	No	-	Yes	No	Yes	-	Yes	No	-	-
	Adjustment factor	-0.039	-0.010	-0.015		0.000	0.000	0.001		0.001	0.000	-	
	Economically sensible	Yes	No	-	-	Yes	-	Yes	-	No	-	-	-
	VECM residual auto-correlation at lag	3				1				2			
	Jarque-Bera: p-value	0.000				0.000				0.046			
	Heteroskedasticity test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.486	0.227		ARCH(1)	0.152	0.358	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.842		
	CPI(ITA)	ARCH(1)	0.486	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.152	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.842		
	e(AUT/ITA)	ARCH(1)	0.486	0.227		ARCH(1)	**0.002**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Luxem-bourg / Austria	Number observations	154				311				221			
	Lags	3				13				15			
	Cointegration rank at significance level 5%	-				0				0			
	Trace statistics	50.925	24.739	8.946		**21.418**	10.811	2.202		**13.501**	3.181	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.757	0.235	1.000	1.000	0.989	0.986	1.000	1.000	0.955	0.955
	Cointegration vector	CPI(AUT)	CPI(LUX)	e(AUT/LUX)	Constant	CPI(AUT)	CPI(LUX)	e(AUT/LUX)	Constant	CPI(AUT)	CPI(LUX)	e(AUT/LUX)	Constant
	Coefficient	1.000	-1.043	8.104	-3.327	1.000	-1.154	-0.517	0.649	1.000	-0.418	-	-2.763
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.006	0.014	-0.025		0.015	0.021	0.030		0.003	-0.007	-	
	Economically sensible	No	Yes	-	-	No	Yes	Yes	-	No	No	-	-
	VECM residual auto-correlation at lag	2				4				2			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticity test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.152	**0.000**		ARCH(1)	0.169	0.210		ARCH(1)	0.326	**0.025**	
		GARCH(1)	0.842			)	0.428			GARCH(1)	0.109		
	CPI(LUX)	ARCH(1)	**0.008**	**0.000**		ARCH(1)	**0.007**	**0.000**		ARCH(1)	0.090	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/LUX)	ARCH(1)	0.194	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Nether-lands / Austria	Number observations	153				311				221			
	Lags	4				13				18			
	Cointegration rank at significance level 5%	-				1				1			
	Trace statistics	50.739	25.777	4.475		42.806	**14.698**	6.054		20.411	**0.894**	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.794	0.503	1.000	1.000	0.968	0.960	1.016	1.000	0.985	0.985
	Cointegration vector	CPI(AUT)	CPI(NLD)	e(AUT/NLD)	Constant	CPI(AUT)	CPI(NLD)	e(AUT/NLD)	Constant	CPI(AUT)	CPI(NLD)	e(AUT/NLD)	Constant
	Coefficient	1.000	-0.770	-2.651	-0.414	1.000	-3.538	-16.988	10.918	1.000	-1.178	-	0.809
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.044	-0.019	0.083		0.004	-0.001	0.005		-0.025	0.037	-	
	Economically sensible	Yes	No	Yes	-	No	No	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	3				3				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.389	0.689		ARCH(1)	0.240	**0.000**	
		GARCH(1)	**0.007**			)	0.932			GARCH(1)	**0.000**		
	CPI(NLD)	ARCH(1)	0.147	**0.000**		ARCH(1)	0.089	**0.000**		ARCH(1)	0.828	0.903	
		GARCH(1)	**0.000**			)	0.104			GARCH(1)	0.785		
	e(AUT/NLD)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.098	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.022**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Portugal / Austria	Number observations	156				311				221			
	Lags	1				13				14			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**28.757**	11.587	3.604		36.832	17.782	5.841		**9.587**	1.923	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.003	1.000	1.000	0.955	1.318	1.179	1.044	1.044	1.000	0.982	0.930	0.930
	Cointegration vector	CPI(AUT)	CPI(PRT)	e(AUT/PRT)	Constant	CPI(AUT)	CPI(PRT)	e(AUT/PRT)	Constant	CPI(AUT)	CPI(PRT)	e(AUT/PRT)	Constant
	Coefficient	1.000	-5.129	-14.916	35.603	1.000	-0.747	-0.776	-1.284	1.000	-1.261	-	1.175
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.001	-0.003	0.001		-0.007	0.004	0.054		-0.005	0.009	-	
	Economically sensible	Yes	No	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	3				1				2			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.002**	**0.004**		ARCH(1)	**0.044**	**0.042**		ARCH(1)	0.525	0.775	
		GARCH(1)	0.511			)	0.553			GARCH(1)	0.838		
	CPI(PRT)	ARCH(1)	0.205	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.910	0.957	
		GARCH(1)	**0.001**			)	**0.000**			GARCH(1)	0.863		
	e(AUT/PRT)	ARCH(1)	**0.012**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	0.551			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / Austria	Number observations	156				311				221			
	Lags	1				15				14			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**22.333**	4.817	1.276		38.005	17.775	4.861		**13.005**	3.000	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.936	0.989	1.040	1.040	1.035	1.035	1.000	0.997	0.968	0.968
	Cointegration vector	CPI(AUT)	CPI(ESP)	e(AUT/ESP)	Constant	CPI(AUT)	CPI(ESP)	e(AUT/ESP)	Constant	CPI(AUT)	CPI(ESP)	e(AUT/ESP)	Constant
	Coefficient	1.000	-0.378	0.530	-3.356	1.000	-1.754	-4.388	2.836	1.000	-0.083	-	-4.330
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.006	0.073	-0.058		-0.002	-0.002	0.004		0.000	-0.008	-	
	Economically sensible	Yes	Yes	-	-	Yes	No	Yes	-	No	No	-	-
	VECM residual auto-correlation at lag	2				1				1			
	Jarque-Bera: p-value	0.000				0.000				0.055			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.002**	**0.004**		ARCH(1)	0.088	0.142		ARCH(1)	0.140	0.323	
		GARCH(1)	0.446			)	0.684			GARCH(1)	0.730		
	CPI(ESP)	ARCH(1)	0.428	**0.008**		ARCH(1)	**0.004**	**0.000**		ARCH(1)	0.276	**0.000**	
		GARCH(1)	0.134			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ESP)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	0.338			GARCH(1)	-		
Period		1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Finland / Belgium	Number observations	155				311				221			
	Lags	2				13				19			
	Cointegration rank at significance level 5%	0				1				0			
	Trace statistics	**18.282**	5.164	0.220		41.558	**11.357**	3.883		**14.906**	0.503	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.977	0.274	1.108	1.108	1.048	1.048	1.000	0.976	0.964	0.964
	Cointegration vector	CPI(BEL)	CPI(FIN)	e(BEL/FIN)	Constant	CPI(BEL)	CPI(FIN)	e(BEL/FIN)	Constant	CPI(BEL)	CPI(FIN)	e(BEL/FIN)	Constant
	Coefficient	1.000	-1.635	-0.700	1.446	1.000	-0.457	-0.185	-2.356	1.000	-1.278	-	1.314
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.007	0.001	0.016		-0.003	-0.018	0.051		0.017	0.048	-	
	Economically sensible	Yes	Yes	Yes	-	Yes	No	Yes	-	No	Yes	-	-
	VECM residual auto-correlation at lag	1				0				1			
	Jarque-Bera: p-value	0.000				0.000				0.216			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.051	**0.000**		ARCH(1)	0.411	**0.000**		ARCH(1)	0.241	**0.003**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.111		
	CPI(FIN)	ARCH(1)	0.051	**0.000**		ARCH(1)	0.060	**0.000**		ARCH(1)	0.195	0.389	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.757		
	e(AUT/FIN)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
France / Belgium	Number observations	156				311				221			
	Lags	1				14				13			
	Cointegration rank at significance level 5%	1				-				0			
	Trace statistics	42.136	**5.111**	0.960		55.526	29.877	7.028		**6.707**	1.333	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.982	0.964	1.035	1.035	1.031	1.030	1.000	0.997	0.968	0.968
	Cointegration vector	CPI(BEL)	CPI(FRA)	e(BEL/FRA)	Constant	CPI(BEL)	CPI(FRA)	e(BEL/FRA)	Constant	CPI(BEL)	CPI(FRA)	e(BEL/FRA)	Constant
	Coefficient	1.000	-1.141	-0.204	0.026	1.000	-0.905	-3.049	-0.528	1.000	-11.799	-	52.588
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.031	-0.016	0.024		-0.002	-0.003	0.016		0.000	0.000	-	
	Economically sensible	Yes	No	Yes	-	Yes	No	Yes	-	No	Yes	-	-
	VECM residual auto-correlation at lag	0				1				1			
	Jarque-Bera: p-value	0.000				0.000				0.614			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.007**	**0.000**		ARCH(1)	0.255	**0.000**		ARCH(1)	0.153	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	**0.010**		
	CPI(FRA)	ARCH(1)	0.073	**0.007**		ARCH(1)	**0.002**	**0.000**		ARCH(1)	0.684	0.907	
		GARCH(1)	0.180			)	**0.019**			GARCH(1)	0.965		
	e(AUT/FRA)	ARCH(1)	0.073	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.180			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Germany / Belgium	Number observations	151				311				221			
	Lags	6				13				13			
	Cointegration rank at significance level 5%	-				0				1			
	Trace statistics	49.525	23.034	6.484		**18.572**	7.639	0.474		15.418	**1.272**	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.985	0.780	1.026	1.026	1.000	1.000	1.000	0.958	0.928	0.928
	Cointegration vector	CPI(BEL)	CPI(GER)	e(BEL/GER)	Constant	CPI(BEL)	CPI(GER)	e(BEL/GER)	Constant	CPI(BEL)	CPI(GER)	e(BEL/GER)	Constant
	Coefficient	1.000	-1.223	-0.553	0.886	1.000	-0.649	-0.753	-1.537	1.000	-1.360	-	1.667
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.038	-0.032	0.048		-0.008	-0.002	0.004		-0.031	0.081	-	
	Economically sensible	Yes	No	Yes	-	Yes	No	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	1				1				1			
	Jarque-Bera: p-value	0.000				0.000				0.020			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.684	**0.000**		ARCH(1)	0.159	**0.000**		ARCH(1)	0.106	**0.000**	
		GARCH(1)	0.965			)	**0.000**			GARCH(1)	**0.000**		
	CPI(GER)	ARCH(1)	0.883	0.985		ARCH(1)	0.054	0.155		ARCH(1)	0.574	0.378	
		GARCH(1)	0.963			)	0.984			GARCH(1)	0.428		
	e(AUT/GER)	ARCH(1)	0.090	0.228		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.842			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Greece / Belgium	Number observations	133				311				221			
	Lags	24				13				13			
	Cointegration rank at significance level 5%					2				0			
	Trace statistics	**18.612**	4.807	0.982		54.266	15.879	**3.291**		**5.400**	0.868	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.135	1.135	1.085	1.085	1.218	1.218	1.078	1.078	1.003	1.000	0.951	0.951
	Cointegration vector	CPI(BEL)	CPI(GRC)	e(BEL/GRC)	Constant	CPI(BEL)	CPI(GRC)	e(BEL/GRC)	Constant	CPI(BEL)	CPI(GRC)	e(BEL/GRC)	Constant
	Coefficient	1.000	-1.422	-0.584	-1.025	1.000	-0.563	-0.547	-2.141	1.000	-0.423	-	-2.724
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.035	0.312	-0.063		-0.014	-0.021	0.019		0.000	-0.016	-	
	Economically sensible	Yes	Yes	No	-	Yes	No	Yes	-	Yes	No	-	-
	VECM residual auto-correlation at lag	0				3				0			
	Jarque-Bera: p-value	0.021				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.251	0.484		ARCH(1)	0.340	**0.003**		ARCH(1)	0.150	**0.000**	
		GARCH(1)	0.895			)	**0.013**			GARCH(1)	**0.004**		
	CPI(GRC)	ARCH(1)	0.324	**0.000**		ARCH(1)	0.130	**0.000**		ARCH(1)	0.223	0.059	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.406		
	e(AUT/GRC)	ARCH(1)	0.343	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.030**			)	**0.000**			GARCH(1)	-		

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Ireland / Belgium	Number observations	153				311				221			
	Lags	4				10				14			
	Cointegration rank at significance level 5%	1				2				0			
	Trace statistics	43.460	**13.750**	2.845		41.526	17.232	**2.004**		**10.108**	1.561	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.997	0.646	1.025	1.025	1.000	1.000	1.000	0.995	0.955	0.955
	Cointegration vector	CPI(BEL)	CPI(IRL)	e(BEL/IRL)	Constant	CPI(BEL)	CPI(IRL)	e(BEL/IRL)	Constant	CPI(BEL)	CPI(IRL)	e(BEL/IRL)	Constant
	Coefficient	1.000	-0.835	0.396	-1.872	1.000	-0.438	0.982	-2.426	1.000	-3.160	-	10.197
	Economically sensible	Yes	Yes	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	-0.011	-0.014	0.004		0.005	0.002	-0.052		-0.001	0.002	-	
	Economically sensible	Yes	No	-	-	No	Yes	-	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	1				4				1			
	Jarque-Bera: p-value	0.000				0.000				0.810			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.005**	**0.000**		ARCH(1)	0.311	**0.000**		ARCH(1)	0.203	0.090	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.450		
	CPI(IRL)	ARCH(1)	0.637	0.893		ARCH(1)	**0.004**	**0.000**		ARCH(1)	0.203	**0.000**	
		GARCH(1)	0.960			)	**0.000**			GARCH(1)	0.450		
	e(AUT/IRL)	ARCH(1)	0.637	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.960			)	**0.001**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Italy / Belgium	Number observations	153				311				221			
	Lags	4				14				3			
	Cointegration rank at significance level 5%	1				-				0			
	Trace statistics	41.018	**12.750**	1.541		54.122	24.769	4.458		**14.242**	0.943	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.975	0.729	1.136	1.136	1.104	1.104	1.000	0.998	0.306	0.157
	Cointegration vector	CPI(BEL)	CPI(ITA)	e(BEL/ITA)	Constant	CPI(BEL)	CPI(ITA)	e(BEL/ITA)	Constant	CPI(BEL)	CPI(ITA)	e(BEL/ITA)	Constant
	Coefficient	1.000	-1.073	1.669	-3.490	1.000	-0.477	0.026	-2.256	1.000	-0.142	-	-4.158
	Economically sensible	Yes	Yes	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	-0.022	-0.004	-0.004		-0.028	0.014	-0.147		-0.001	-0.004	-	
	Economically sensible	Yes	No	-	-	Yes	Yes	-	-	Yes	No	-	-
	VECM residual auto-correlation at lag	3				0				1			
	Jarque-Bera: p-value	0.000				0.000				0.272			
	Heteroskedasticity test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.033**	**0.000**		ARCH(1)	0.837	0.975		ARCH(1)	0.166	**0.000**	
		GARCH(1)	**0.000**			)	0.953			GARCH(1)	**0.032**		
	CPI(ITA)	ARCH(1)	0.502	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.315	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ITA)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Luxem-bourg / Belgium	Number observations	221				221				221			
	Lags	0				0				19			
	Cointegration rank at significance level 5%	-				-				0			
	Trace statistics	**14.242**	0.943	4.458		**14.242**	0.943	4.458		**13.078**	2.477	-	
	5% critical values	15.410	3.760	3.760		15.410	3.760	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	0.998	0.306	0.157	1.000	0.998	0.306	0.157	1.000	0.961	0.961	0.946
	Cointegration vector	CPI(BEL)	CPI(LUX)	e(BEL/LUX)	Constant	CPI(BEL)	CPI(LUX)	e(BEL/LUX)	Constant	CPI(BEL)	CPI(LUX)	e(BEL/LUX)	Constant
	Coefficient	1.000	-0.142	-4.158	-2.256	1.000	-0.142	-4.158	-2.256	1.000	-0.964	-	-0.167
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.001	-0.004	-0.147		-0.001	-0.004	-0.147		-0.045	0.056	-	
	Economically sensible	Yes	No	No	-	Yes	No	No	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	25				25				5			
	Jarque-Bera: p-value	0.272				0.272				0.000			
	Heteroskedasticity test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.315	**0.000**		ARCH(1)	0.315	**0.000**		ARCH(1)	0.316	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.061		
	CPI(LUX)	ARCH(1)	0.315	**0.000**		ARCH(1)	0.315	**0.000**		ARCH(1)	0.064	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/LUX)	ARCH(1)	0.315	**0.000**		ARCH(1)	0.315	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Nether-lands / Belgium	Number observations	133				311				221			
	Lags	24				14				13			
	Cointegration rank at significance level 5%	-				0				0			
	Trace statistics	68.305	30.693	9.809		**24.603**	8.999	4.283		**12.622**	0.938	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.078	1.078	1.034	1.034	1.095	1.095	1.000	1.000	1.000	0.968	0.920	0.920
	Cointegration vector	CPI(BEL)	CPI(NLD)	e(BEL/NLD)	Constant	CPI(BEL)	CPI(NLD)	e(BEL/NLD)	Constant	CPI(BEL)	CPI(NLD)	e(BEL/NLD)	Constant
	Coefficient	1.000	-0.687	4.837	0.568	1.000	-0.934	-0.970	-0.293	1.000	-1.232	-	1.099
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.052	0.115	-0.128		-0.028	-0.002	0.019		-0.006	0.033	-	
	Economically sensible	Yes	Yes	-	-	Yes	No	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	1				2				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticity test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.258	**0.000**		ARCH(1)	0.224	**0.000**		ARCH(1)	**0.000**	**0.000**	
		GARCH(1)	**0.003**			)	**0.000**			GARCH(1)	**0.000**		
	CPI(NLD)	ARCH(1)	0.282	**0.000**		ARCH(1)	**0.028**	**0.000**		ARCH(1)	**0.000**	**0.000**	
		GARCH(1)	**0.000**			)	0.064			GARCH(1)	**0.000**		
	e(AUT/NLD)	ARCH(1)	**0.043**	0.061		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.640			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Portugal / Belgium	Number observations	146				311				221			
	Lags	11				13				14			
	Cointegration rank at significance level 5%	1				-				0			
	Trace statistics	31.770	**12.322**	4.452		45.022	24.626	9.520		**6.698**	0.823	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.039	1.039	1.000	1.000	1.193	1.127	1.127	1.114	1.000	0.992	0.942	0.942
	Cointegration vector	CPI(BEL)	CPI(PRT)	e(BEL/PRT)	Constant	CPI(BEL)	CPI(PRT)	e(BEL/PRT)	Constant	CPI(BEL)	CPI(PRT)	e(BEL/PRT)	Constant
	Coefficient	1.000	-0.024	-3.060	3.916	1.000	-0.143	0.328	-3.679	1.000	-1.503	-	2.315
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.005	0.028	0.009		-0.008	0.030	-0.108		-0.003	0.006	-	
	Economically sensible	No	Yes	Yes	-	Yes	Yes	-	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	1				1				0			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticity test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.531	**0.005**		ARCH(1)	0.529	0.774		ARCH(1)	0.135	**0.000**	
		GARCH(1)	0.072			)	0.900			GARCH(1)	0.133		
	CPI(PRT)	ARCH(1)	0.168	0.070		ARCH(1)	**0.001**	**0.000**		ARCH(1)	0.471	0.745	
		GARCH(1)	0.362			)	**0.000**			GARCH(1)	0.865		
	e(AUT/PRT)	ARCH(1)	0.168	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.362			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / Belgium	Number observations	156				311				221			
	Lags	1				15				19			
	Cointegration rank at significance level 5%	1				-				0			
	Trace statistics	30.979	**7.669**	0.424		50.044	26.635	7.669		**15.273**	2.700	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.995	0.942	1.254	1.254	1.010	1.010	1.007	1.000	0.989	0.989
	Cointegration vector	CPI(BEL)	CPI(ESP)	e(BEL/ESP)	Constant	CPI(BEL)	CPI(ESP)	e(BEL/ESP)	Constant	CPI(BEL)	CPI(ESP)	e(BEL/ESP)	Constant
	Coefficient	1.000	-0.047	0.878	-3.737	1.000	-0.405	-0.030	-2.640	1.000	-0.432	-	-2.655
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.018	0.018	-0.025		-0.015	-0.016	-0.070		0.000	-0.018	-	
	Economically sensible	No	Yes	-	-	Yes	No	No	-	Yes	No	-	-
	VECM residual auto-correlation at lag	1				3				1			
	Jarque-Bera: p-value	0.000				0.000				0.004			
	Heteroskedasticity test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.011**	**0.000**		ARCH(1)	0.309	**0.000**		ARCH(1)	0.307	**0.001**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.070		
	CPI(ESP)	ARCH(1)	0.250	**0.008**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	0.095	**0.000**	
		GARCH(1)	0.178			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ESP)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	0.946			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
France / Finland	Number observations	155				311				221			
	Lags	2				14				16			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**28.768**	6.583	2.300		51.766	22.053	4.456		**13.052**	3.271	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.961	0.078	1.099	1.099	1.077	1.077	1.000	0.960	0.960	0.932
	Cointegration vector	CPI(FIN)	CPI(FRA)	e(FIN/FRA)	Constant	CPI(FIN)	CPI(FRA)	e(FIN/FRA)	Constant	CPI(FIN)	CPI(FRA)	e(FIN/FRA)	Constant
	Coefficient	1.000	-1.131	-0.692	0.320	1.000	-0.703	-0.120	-1.421	1.000	-0.946	-	-0.296
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.009	-0.017	0.078		-0.012	-0.004	-0.015		-0.028	-0.016	-	
	Economically sensible	Yes	No	Yes	-	Yes	No	No	-	Yes	No	-	-
	VECM residual auto-correlation at lag	0				1				2			
	Jarque-Bera: p-value	0.000				0.000				0.297			
	Heteroskedasticity test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.027**	**0.000**		ARCH(1)	0.096	**0.000**		ARCH(1)	0.243	0.446	
		GARCH(1)	0.626			)	**0.000**			GARCH(1)	0.723		
	CPI(FRA)	ARCH(1)	**0.037**	**0.000**		ARCH(1)	0.723	0.154		ARCH(1)	0.523	0.768	
		GARCH(1)	**0.008**			)	0.307			GARCH(1)	0.865		
	e(AUT/FRA)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.499	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Germany / Finland	Number observations	155				311				221			
	Lags	2				13				16			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**24.335**	8.297	2.638		54.095	21.005	3.982		**7.422**	0.278	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.012	1.000	1.000	0.087	1.192	1.192	1.053	1.053	1.000	0.940	0.932	0.932
	Cointegration vector	CPI(FIN)	CPI(GER)	e(FIN/GER)	Constant	CPI(FIN)	CPI(GER)	e(FIN/GER)	Constant	CPI(FIN)	CPI(GER)	e(FIN/GER)	Constant
	Coefficient	1.000	-1.906	-0.184	3.620	1.000	1.246	8.352	-10.041	1.000	-1.027	-	0.095
	Economically sensible	Yes	Yes	Yes	-	Yes	No	No	-	Yes	Yes	-	-
	Adjustment factor	-0.016	-0.016	0.000		-0.001	0.000	-0.004		-0.037	-0.021	-	
	Economically sensible	Yes	No	No	-	Yes	-	-	-	Yes	No	-	-
	VECM residual auto-correlation at lag	2				3				1			
	Jarque-Bera: p-value	0.000				0.000				0.369			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.794	0.963		ARCH(1)	0.058	**0.000**		ARCH(1)	0.668	0.898	
		GARCH(1)	0.947			)	**0.000**			GARCH(1)	0.941		
	CPI(GER)	ARCH(1)	0.802	0.969		ARCH(1)	0.058	**0.000**		ARCH(1)	0.170	0.363	
		GARCH(1)	0.974			)	**0.000**			GARCH(1)	0.809		
	e(AUT/GER)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.096	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Greece / Finland	Number observations	155				311				221			
	Lags	2				15				13			
	Cointegration rank at significance level 5%					-				0			
	Trace statistics	**13.568**	4.989	1.063		46.814	20.200	5.682		**8.256**	2.358	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.935	0.083	1.323	1.323	1.071	1.071	1.000	0.982	0.938	0.936
	Cointegration vector	CPI(FIN)	CPI(GRC)	e(FIN/GRC)	Constant	CPI(FIN)	CPI(GRC)	e(FIN/GRC)	Constant	CPI(FIN)	CPI(GRC)	e(FIN/GRC)	Constant
	Coefficient	1.000	-1.448	-0.423	-1.196	1.000	-0.061	0.166	-4.212	1.000	-0.430	-	-2.700
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.004	0.035	0.057		-0.007	-0.003	-0.002		-0.009	-0.027	-	
	Economically sensible	No	Yes	Yes	-	Yes	No	-	-	Yes	No	-	-
	VECM residual auto-correlation at lag	1				3				0			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.170	**0.000**		ARCH(1)	0.137	**0.000**		ARCH(1)	0.967	0.999	
		GARCH(1)	0.809			)	**0.000**			GARCH(1)	0.987		
	CPI(GRC)	ARCH(1)	0.548	**0.000**		ARCH(1)	**0.044**	**0.000**		ARCH(1)	0.238	0.080	
		GARCH(1)	**0.003**			)	**0.000**			GARCH(1)	0.445		
	e(AUT/GRC)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.260	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.007**			GARCH(1)	-		

DOI https://doi.org/10.3790/ccm.52.2.A1 | Generated on 2024-07-03 17:16:30

Johansen Cointegration Tests for Real Exchange Rate Components													
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Ireland / Finland	Number observations	153				311				221			
	Lags	4				13				18			
	Cointegration rank at significance level 5%	0				2				0			
	Trace statistics	**29.305**	7.248	2.221		38.360	15.654	**2.585**		**14.079**	3.603	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.995	0.649	1.187	1.187	1.021	1.021	1.000	0.990	0.981	0.981
	Cointegration vector	CPI(FIN)	CPI(IRL)	e(FIN/IRL)	Constant	CPI(FIN)	CPI(IRL)	e(FIN/IRL)	Constant	CPI(FIN)	CPI(IRL)	e(FIN/IRL)	Constant
	Coefficient	1.000	-1.819	-3.227	1.807	1.000	-0.650	-0.640	-1.600	1.000	-2.151	-	5.470
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.001	-0.003	0.004		-0.010	-0.007	0.014		-0.001	0.003	-	
	Economically sensible	Yes	No	Yes	-	Yes	No	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	3				2				3			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.036**	**0.000**		ARCH(1)	**0.020**	**0.000**		ARCH(1)	0.212	**0.011**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.096		
	CPI(IRL)	ARCH(1)	0.539	0.826		ARCH(1)	**0.020**	**0.000**		ARCH(1)	0.213	0.390	
		GARCH(1)	0.970			)	**0.000**			GARCH(1)	0.905		
	e(AUT/IRL)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.082	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Italy / Finland	Number observations	155				311				221			
	Lags	2				18				16			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**26.637**	5.868	0.460		50.616	25.998	10.419		**14.271**	3.319	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.884	0.058	1.230	1.069	1.069	1.048	1.002	1.000	0.964	0.964
	Cointegration vector	CPI(FIN)	CPI(ITA)	e(FIN/ITA)	Constant	CPI(FIN)	CPI(ITA)	e(FIN/ITA)	Constant	CPI(FIN)	CPI(ITA)	e(FIN/ITA)	Constant
	Coefficient	1.000	-1.140	-0.274	-0.336	1.000	-0.731	-0.454	-1.276	1.000	-0.665	-	-1.591
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.111	-0.023	0.129		-0.019	-0.001	0.017		-0.024	-0.016	-	
	Economically sensible	Yes	No	Yes	-	Yes	No	Yes	-	Yes	No	-	-
	VECM residual auto-correlation at lag	0				0				2			
	Jarque-Bera: p-value	0.000				0.000				0.943			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.124	**0.000**		ARCH(1)	0.073	**0.000**		ARCH(1)	0.117	0.292	
		GARCH(1)	**0.002**			)	**0.000**			GARCH(1)	0.945		
	CPI(ITA)	ARCH(1)	0.593	0.571		ARCH(1)	**0.002**	**0.000**		ARCH(1)	0.274	0.202	
		GARCH(1)	0.738			)	**0.000**			GARCH(1)	0.665		
	e(AUT/ITA)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.005**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.020**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Luxembourg / Finland	Number observations	155				311				221			
	Lags	2				15				13			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**18.871**	6.002	1.378		48.729	16.480	5.320		**11.805**	3.061	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.995	0.094	1.160	1.160	1.065	1.065	1.000	0.965	0.965	0.932
	Cointegration vector	CPI(FIN)	CPI(LUX)	e(FIN/LUX)	Constant	CPI(FIN)	CPI(LUX)	e(FIN/LUX)	Constant	CPI(FIN)	CPI(LUX)	e(FIN/LUX)	Constant
	Coefficient	1.000	3.161	-2.040	-13.026	1.000	-3.086	-0.850	9.044	1.000	-0.670	-	-1.566
	Economically sensible	Yes	No	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.001	0.003	0.008		0.005	0.000	0.011		-0.020	-0.030	-	
	Economically sensible	No	-	Yes	-	No	Yes	Yes	-	Yes	No	-	-
	VECM residual auto-correlation at lag	1				0				6			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.799	0.955		ARCH(1)	**0.012**	**0.000**		ARCH(1)	0.796	**0.007**	
		GARCH(1)	0.915			)	**0.000**			GARCH(1)	**0.037**		
	CPI(LUX)	ARCH(1)	0.783	0.944		ARCH(1)	**0.011**	**0.000**		ARCH(1)	0.116	**0.000**	
		GARCH(1)	0.887			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/LUX)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.009**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Netherlands / Finland	Number observations	155				311				221			
	Lags	2				13				13			
	Cointegration rank at significance level 5%	0				2				0			
	Trace statistics	**18.950**	6.668	0.597		48.703	21.611	**3.694**		**12.147**	2.573	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.978	0.086	1.234	1.234	1.040	1.040	1.000	0.977	0.888	0.888
	Cointegration vector	CPI(FIN)	CPI(NLD)	e(FIN/NLD)	Constant	CPI(FIN)	CPI(NLD)	e(FIN/NLD)	Constant	CPI(FIN)	CPI(NLD)	e(FIN/NLD)	Constant
	Coefficient	1.000	-0.849	0.054	0.438	1.000	-0.919	-6.618	-0.403	1.000	-1.100	-	0.506
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.000	0.031	0.009		0.001	0.000	0.008		-0.002	0.025	-	
	Economically sensible	Yes	Yes	-	-	No	No	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	1				1				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.116	**0.000**		ARCH(1)	**0.034**	**0.000**		ARCH(1)	0.763	0.886	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.866		
	CPI(NLD)	ARCH(1)	0.227	**0.000**		ARCH(1)	**0.003**	**0.000**		ARCH(1)	0.763	**0.000**	
		GARCH(1)	**0.000**			)	0.123			GARCH(1)	0.866		
	e(AUT/NLD)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.010**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Portugal / Finland	Number observations	155				311				221			
	Lags	2				13				17			
	Cointegration rank at significance level 5%	0				2				0			
	Trace statistics	**23.183**	6.687	0.774		52.661	26.600	**3.286**		**8.861**	2.522	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.005	1.000	1.000	0.087	1.124	1.124	1.000	1.000	1.000	0.995	0.962	0.928
	Cointegration vector	CPI(FIN)	CPI(PRT)	e(FIN/PRT)	Constant	CPI(FIN)	CPI(PRT)	e(FIN/PRT)	Constant	CPI(FIN)	CPI(PRT)	e(FIN/PRT)	Constant
	Coefficient	1.000	0.523	-0.784	-1.146	1.000	-0.312	0.150	-3.062	1.000	-0.180	-	-3.921
	Economically sensible	Yes	No	Yes	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.001	0.014	0.006		-0.014	-0.001	-0.052		-0.003	-0.009	-	
	Economically sensible	No	-	Yes	-	Yes	No	-	-	Yes	No	-	-
	VECM residual auto-correlation at lag	1				0				1			
	Jarque-Bera: p-value	0.000				0.000				0.001			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.241	**0.000**		ARCH(1)	**0.029**	**0.000**		ARCH(1)	0.722	0.823	
		GARCH(1)	0.111			)	**0.000**			GARCH(1)	0.788		
	CPI(PRT)	ARCH(1)	0.283	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.277	0.141	
		GARCH(1)	**0.023**			)	**0.000**			GARCH(1)	0.535		
	e(AUT/PRT)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / Finland	Number observations	155				311				221			
	Lags	2				15				17			
	Cointegration rank at significance level 5%	1				-				1			
	Trace statistics	31.343	**6.855**	0.622		58.344	26.357	6.057		16.196	**3.454**	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.766	0.124	1.000	1.000	0.989	0.989	1.002	1.000	0.999	0.983
	Cointegration vector	CPI(FIN)	CPI(ESP)	e(FIN/ESP)	Constant	CPI(FIN)	CPI(ESP)	e(FIN/ESP)	Constant	CPI(FIN)	CPI(ESP)	e(FIN/ESP)	Constant
	Coefficient	1.000	-0.640	-0.672	-1.168	1.000	-0.516	-0.022	-2.270	1.000	-0.441	-	-2.640
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.052	0.081	0.216		-0.017	-0.004	-0.030		-0.013	-0.026	-	
	Economically sensible	Yes	Yes	Yes	-	Yes	No	No	-	Yes	No	-	-
	VECM residual auto-correlation at lag	1				2				2			
	Jarque-Bera: p-value	0.000				0.000				0.862			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.365	**0.000**		ARCH(1)	**0.024**	**0.000**		ARCH(1)	**0.008**	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	**0.011**		
	CPI(ESP)	ARCH(1)	0.422	0.183		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.193	**0.000**	
		GARCH(1)	0.416			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ESP)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.008**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.011**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Germany / France	Number observations	155				311				221			
	Lags	2				13				14			
	Cointegration rank at significance level 5%	1				1				0			
	Trace statistics	35.422	**11.206**	1.509		53.833	**12.219**	1.224		**12.481**	3.850	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.991	0.126	1.177	1.177	1.078	1.002	1.009	1.000	0.979	0.979
	Cointegration vector	CPI(FRA)	CPI(GER)	e(FRA/GER)	Constant	CPI(FRA)	CPI(GER)	e(FRA/GER)	Constant	CPI(FRA)	CPI(GER)	e(FRA/GER)	Constant
	Coefficient	1.000	-1.545	1.256	4.214	1.000	-0.795	-1.358	-0.855	1.000	-1.141	-	0.682
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.005	0.007	-0.002		0.003	0.002	0.118		0.037	0.036	-	
	Economically sensible	No	Yes	-	-	No	Yes	Yes	-	No	Yes	-	-
	VECM residual auto-correlation at lag	3				2				1			
	Jarque-Bera: p-value	0.000				0.000				0.091			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.156	**0.013**		ARCH(1)	0.485	0.085	
		GARCH(1)	**0.000**			)	0.140			GARCH(1)	0.153		
	CPI(GER)	ARCH(1)	0.790	0.579		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.156	0.170	
		GARCH(1)	0.492			)	**0.000**			GARCH(1)	0.571		
	e(AUT/GER)	ARCH(1)	0.122	**0.000**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Greece / France	Number observations	156				311				221			
	Lags	1				15				16			
	Cointegration rank at significance level 5%					-				0			
	Trace statistics	**26.313**	8.417	1.593		45.859	24.226	8.547		**11.006**	2.279	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.930	0.979	1.239	1.239	1.186	1.186	1.000	0.986	0.986	0.981
	Cointegration vector	CPI(FRA)	CPI(GRC)	e(FRA/GRC)	Constant	CPI(FRA)	CPI(GRC)	e(FRA/GRC)	Constant	CPI(FRA)	CPI(GRC)	e(FRA/GRC)	Constant
	Coefficient	1.000	-1.422	-0.139	-1.891	1.000	-2.019	-1.739	5.251	1.000	-0.540	-	-2.173
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.017	0.061	-0.002		0.001	0.002	-0.001		-0.041	-0.030	-	
	Economically sensible	No	Yes	No	-	No	Yes	No	-	Yes	No	-	-
	VECM residual auto-correlation at lag	2				3				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.055	**0.034**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	0.794	0.915	
		GARCH(1)	0.559			)	0.058			GARCH(1)	0.852		
	CPI(GRC)	ARCH(1)	0.540	0.197		ARCH(1)	0.053	**0.000**		ARCH(1)	0.218	**0.014**	
		GARCH(1)	0.428			)	**0.000**			GARCH(1)	0.291		
	e(AUT/GRC)	ARCH(1)	0.540	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.428			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Ireland / France	Number observations	149				311				221			
	Lags	8				10				17			
	Cointegration rank at significance level 5%	0				-				-			
	Trace statistics	**26.756**	14.187	4.099		51.748	23.520	8.210		16.479	6.996	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.999	0.967	1.049	1.040	1.040	1.022	1.011	1.011	1.000	0.998
	Cointegration vector	CPI(FRA)	CPI(IRL)	e(FRA/IRL)	Constant	CPI(FRA)	CPI(IRL)	e(FRA/IRL)	Constant	CPI(FRA)	CPI(IRL)	e(FRA/IRL)	Constant
	Coefficient	1.000	1.134	-6.514	-0.605	1.000	-1.340	0.765	1.437	1.000	-0.138	-	-4.070
	Economically sensible	Yes	No	Yes	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.002	0.001	0.001		0.002	0.004	-0.013		-0.001	-0.010	-	
	Economically sensible	No	-	Yes	-	No	Yes	-	-	Yes	No	-	-
	VECM residual auto-correlation at lag	0				0				1			
	Jarque-Bera: p-value	0.000				0.000				0.315			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.008**	**0.000**		ARCH(1)	0.143	**0.036**		ARCH(1)	**0.000**	**0.000**	
		GARCH(1)	**0.000**			)	0.222			GARCH(1)	**0.000**		
	CPI(IRL)	ARCH(1)	**0.008**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.402	0.423	
		GARCH(1)	**0.000**			)	**0.002**			GARCH(1)	0.525		
	e(AUT/IRL)	ARCH(1)	**0.008**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Italy / France	Number observations	155				311				221			
	Lags	2				7				20			
	Cointegration rank at significance level 5%	1				1				-			
	Trace statistics	30.945	**8.113**	1.372		34.309	**11.013**	0.379		17.894	3.858	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.978	0.057	1.000	1.000	0.990	0.800	1.000	0.985	0.985	0.978
	Cointegration vector	CPI(FRA)	CPI(ITA)	e(FRA/ITA)	Constant	CPI(FRA)	CPI(ITA)	e(FRA/ITA)	Constant	CPI(FRA)	CPI(ITA)	e(FRA/ITA)	Constant
	Coefficient	1.000	-0.817	-0.505	-0.738	1.000	-0.398	-0.294	-2.814	1.000	-0.788	-	-0.980
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.038	0.035	0.068		-0.003	-0.002	0.021		-0.091	0.048	-	
	Economically sensible	No	Yes	Yes	-	Yes	No	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	0				2				4			
	Jarque-Bera: p-value	0.000				0.000				0.680			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.078	**0.049**		ARCH(1)	0.188	0.192	
		GARCH(1)	**0.000**			)	0.412			GARCH(1)	0.499		
	CPI(ITA)	ARCH(1)	0.378	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.056	**0.027**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.487		
	e(AUT/ITA)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.003**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Luxembourg / France	Number observations	156				311				221			
	Lags	1				7				19			
	Cointegration rank at significance level 5%	1				-				0			
	Trace statistics	33.677	**6.370**	1.513		45.663	24.275	4.192		**12.911**	2.530	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.981	0.978	1.000	1.000	0.983	0.917	1.006	1.000	0.993	0.993
	Cointegration vector	CPI(FRA)	CPI(LUX)	e(FRA/LUX)	Constant	CPI(FRA)	CPI(LUX)	e(FRA/LUX)	Constant	CPI(FRA)	CPI(LUX)	e(FRA/LUX)	Constant
	Coefficient	1.000	-1.159	0.137	1.019	1.000	-1.260	-1.894	1.125	1.000	-0.753	-	-1.118
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.019	0.036	0.027		0.003	0.004	0.019		0.031	0.088	-	
	Economically sensible	No	Yes	-	-	No	Yes	Yes	-	No	Yes	-	-
	VECM residual auto-correlation at lag	1				2				2			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.066	**0.003**		ARCH(1)	0.093	**0.001**		ARCH(1)	**0.000**	**0.000**	
		GARCH(1)	0.139			)	0.138			GARCH(1)	**0.000**		
	CPI(LUX)	ARCH(1)	0.066	**0.000**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	**0.016**	**0.000**	
		GARCH(1)	0.139			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/LUX)	ARCH(1)	0.066	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.139			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Netherlands / France	Number observations	156				311				221			
	Lags	1				13				14			
	Cointegration rank at significance level 5%	1				1				0			
	Trace statistics	34.645	**12.371**	4.698		49.922	**13.352**	2.318		**11.096**	4.329	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.954	0.993	1.084	1.084	1.065	1.065	1.000	0.985	0.946	0.946
	Cointegration vector	CPI(FRA)	CPI(NLD)	e(FRA/NLD)	Constant	CPI(FRA)	CPI(NLD)	e(FRA/NLD)	Constant	CPI(FRA)	CPI(NLD)	e(FRA/NLD)	Constant
	Coefficient	1.000	-0.714	-0.115	-0.425	1.000	-0.641	-1.805	-1.525	1.000	-1.019	-	0.139
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.022	0.093	0.011		0.005	-0.001	0.093		0.004	0.021	-	
	Economically sensible	No	Yes	Yes	-	No	No	Yes	-	No	Yes	-	-
	VECM residual auto-correlation at lag	1				2				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.059	**0.002**		ARCH(1)	0.268	0.156		ARCH(1)	0.434	**0.000**	
		GARCH(1)	0.098			)	0.416			GARCH(1)	**0.009**		
	CPI(NLD)	ARCH(1)	0.094	**0.007**		ARCH(1)	**0.008**	**0.000**		ARCH(1)	0.325	**0.002**	
		GARCH(1)	0.319			)	**0.004**			GARCH(1)	0.076		
	e(AUT/NLD)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	0.942			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Portugal / France	Number observations	156				311				221			
	Lags	1				8				14			
	Cointegration rank at significance level 5%	1				-				1			
	Trace statistics	32.578	**10.536**	4.204		44.237	19.237	4.182		17.187	**3.563**	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.009	1.000	1.000	0.956	1.000	1.000	0.996	0.909	1.000	0.964	0.950	0.950
	Cointegration vector	CPI(FRA)	CPI(PRT)	e(FRA/PRT)	Constant	CPI(FRA)	CPI(PRT)	e(FRA/PRT)	Constant	CPI(FRA)	CPI(PRT)	e(FRA/PRT)	Constant
	Coefficient	1.000	5.802	7.287	-13.576	1.000	-0.672	-0.086	-1.421	1.000	-0.723	-	-1.291
	Economically sensible	Yes	No	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.000	0.001	0.000		0.004	0.024	-0.015		-0.047	0.011	-	
	Economically sensible	No	-	-	-	No	Yes	No	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	1				1				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.055	**0.000**		ARCH(1)	0.144	**0.004**		ARCH(1)	0.451	0.749	
		GARCH(1)	**0.031**			)	0.176			GARCH(1)	0.996		
	CPI(PRT)	ARCH(1)	**0.014**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.451	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.996		
	e(AUT/PRT)	ARCH(1)	**0.014**	**0.000**		ARCH(1)	**0.027**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.031**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / France	Number observations	156				311				221			
	Lags	1				15				14			
	Cointegration rank at significance level 5%	1				1				-			
	Trace statistics	40.738	**14.917**	1.728		36.011	**10.750**	4.475		19.899	8.572	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.970	0.928	1.145	1.145	1.138	1.138	1.002	1.002	1.000	0.973
	Cointegration vector	CPI(FRA)	CPI(ESP)	e(FRA/ESP)	Constant	CPI(FRA)	CPI(ESP)	e(FRA/ESP)	Constant	CPI(FRA)	CPI(ESP)	e(FRA/ESP)	Constant
	Coefficient	1.000	-0.581	-0.755	-1.213	1.000	-0.396	-0.226	-2.844	1.000	-0.729	-	-1.245
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.019	0.000	0.065		-0.003	-0.008	0.002		-0.010	0.033	-	
	Economically sensible	No	No	Yes	-	Yes	No	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	0				2				3			
	Jarque-Bera: p-value	0.000				0.000				0.311			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.167	0.064		ARCH(1)	0.292	0.561		ARCH(1)	**0.000**	**0.000**	
		GARCH(1)	0.288			)	0.965			GARCH(1)	0.418		
	CPI(ESP)	ARCH(1)	0.471	0.323		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.205	**0.000**	
		GARCH(1)	0.442			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ESP)	ARCH(1)	0.471	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.442			)	0.418			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Greece / Germany	Number observations	133				311				221			
	Lags	24				15				16			
	Cointegration rank at significance level 5%					0				0			
	Trace statistics	50.622	16.170	5.233		**27.748**	11.922	2.961		**6.320**	2.364	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.141	1.141	1.051	1.051	1.224	1.224	1.025	1.025	1.001	1.000	0.930	0.930
	Cointegration vector	CPI(GER)	CPI(GRC)	e(GER/GRC)	Constant	CPI(GER)	CPI(GRC)	e(GER/GRC)	Constant	CPI(GER)	CPI(GRC)	e(GER/GRC)	Constant
	Coefficient	1.000	-1.021	0.400	-4.388	1.000	-0.663	-0.612	-1.669	1.000	-0.388	-	-2.888
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.009	0.612	0.181		-0.003	0.036	0.171		-0.004	-0.027	-	
	Economically sensible	No	Yes	-	-	Yes	Yes	Yes	-	Yes	No	-	-
	VECM residual auto-correlation at lag	1				4				1			
	Jarque-Bera: p-value	0.000				0.000				0.078			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.407	0.686		ARCH(1)	**0.001**	**0.000**		ARCH(1)	0.486	0.383	
		GARCH(1)	0.901			)	**0.000**			GARCH(1)	0.492		
	CPI(GRC)	ARCH(1)	0.407	**0.000**		ARCH(1)	0.348	**0.000**		ARCH(1)	0.325	0.068	
		GARCH(1)	0.901			)	**0.000**			GARCH(1)	0.492		
	e(AUT/GRC)	ARCH(1)	0.407	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.901			)	**0.000**			GARCH(1)	-		

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Ireland / Germany	Number observations	149				311				221			
	Lags	8				15				19			
	Cointegration rank at significance level 5%	2				1				0			
	Trace statistics	51.533	21.646	**3.739**		39.833	**14.586**	0.890		**11.768**	1.992	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.973	0.973	1.331	1.012	1.012	1.008	1.000	0.995	0.990	0.990
	Cointegration vector	CPI(GER)	CPI(IRL)	e(GER/IRL)	Constant	CPI(GER)	CPI(IRL)	e(GER/IRL)	Constant	CPI(GER)	CPI(IRL)	e(GER/IRL)	Constant
	Coefficient	1.000	-0.706	-0.159	-1.850	1.000	-0.947	-5.161	-0.632	1.000	-5.669	-	21.536
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.086	0.008	0.229		0.000	-0.002	0.006		-0.001	0.001	-	
	Economically sensible	Yes	Yes	Yes	-	Yes	No	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	2				2				1			
	Jarque-Bera: p-value	0.000				0.000				0.628			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.651	0.895		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.113	**0.028**	
		GARCH(1)	0.934			)	**0.000**			GARCH(1)	0.318		
	CPI(IRL)	ARCH(1)	0.651	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.164	**0.005**	
		GARCH(1)	0.934			)	**0.000**			GARCH(1)	0.090		
	e(AUT/IRL)	ARCH(1)	0.651	**0.000**		ARCH(1)	**0.039**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.934			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Italy / Germany	Number observations	155				311				221			
	Lags	2				14				13			
	Cointegration rank at significance level 5%	0				1				0			
	Trace statistics	**29.129**	5.433	1.998		37.080	**15.268**	2.158		**14.833**	6.692	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.975	0.051	1.192	1.192	1.168	1.168	1.000	0.986	0.910	0.910
	Cointegration vector	CPI(GER)	CPI(ITA)	e(GER/ITA)	Constant	CPI(GER)	CPI(ITA)	e(GER/ITA)	Constant	CPI(GER)	CPI(ITA)	e(GER/ITA)	Constant
	Coefficient	1.000	-0.353	1.620	-5.849	1.000	0.214	0.081	-5.430	1.000	-0.975	-	-0.112
	Economically sensible	Yes	Yes	No	-	Yes	No	No	-	Yes	Yes	-	-
	Adjustment factor	-0.018	-0.011	-0.006		-0.001	-0.003	0.018		-0.003	0.011	-	
	Economically sensible	Yes	No	-	-	Yes	-	-	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	4				1				1			
	Jarque-Bera: p-value	0.000				0.000				0.999			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.680	0.733		ARCH(1)	0.342	**0.000**		ARCH(1)	0.093	**0.002**	
		GARCH(1)	0.735			)	**0.000**			GARCH(1)	**0.046**		
	CPI(ITA)	ARCH(1)	0.342	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.085	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ITA)	ARCH(1)	0.342	**0.000**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Luxem-bourg / Germany	Number observations	155				311				221			
	Lags	2				13				19			
	Cointegration rank at significance level 5%	1				0				-			
	Trace statistics	41.324	**14.961**	5.314		**17.434**	6.356	0.536		16.167	6.448	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.981	0.053	1.043	1.043	1.028	1.000	1.000	0.963	0.963	0.957
	Cointegration vector	CPI(GER)	CPI(LUX)	e(GER/LUX)	Constant	CPI(GER)	CPI(LUX)	e(GER/LUX)	Constant	CPI(GER)	CPI(LUX)	e(GER/LUX)	Constant
	Coefficient	1.000	-1.509	-5.129	3.951	1.000	-1.131	-0.885	0.528	1.000	-0.703	-	-1.381
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.005	0.006	0.003		0.002	0.012	0.027		-0.122	0.003	-	
	Economically sensible	No	Yes	Yes	-	No	Yes	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	2				2				2			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.893	0.908		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.288	0.565	
		GARCH(1)	0.805			)	0.197			GARCH(1)	0.873		
	CPI(LUX)	ARCH(1)	0.297	0.057		ARCH(1)	**0.004**	**0.000**		ARCH(1)	**0.041**	**0.000**	
		GARCH(1)	0.376			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/LUX)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.197			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Nether-lands / Germany	Number observations	144				311				221			
	Lags	13				13				16			
	Cointegration rank at significance level 5%	1				1				0			
	Trace statistics	33.072	**14.978**	4.964		57.030	**11.390**	1.578		**13.603**	2.712	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.076	1.050	1.050	1.000	1.000	1.000	0.985	0.985	1.000	0.961	0.961	0.944
	Cointegration vector	CPI(GER)	CPI(NLD)	e(GER/NLD)	Constant	CPI(GER)	CPI(NLD)	e(GER/NLD)	Constant	CPI(GER)	CPI(NLD)	e(GER/NLD)	Constant
	Coefficient	1.000	-0.612	0.587	-1.717	1.000	-1.529	-9.153	2.174	1.000	-0.929	-	-0.309
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.033	-0.046	0.026		0.001	0.001	0.029		-0.013	0.039	-	
	Economically sensible	Yes	No	-	-	No	Yes	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	0				2				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.886	0.981		ARCH(1)	**0.009**	**0.000**		ARCH(1)	0.051	**0.004**	
		GARCH(1)	0.980			)	**0.000**			GARCH(1)	0.071		
	CPI(NLD)	ARCH(1)	0.075	0.075		ARCH(1)	**0.004**	**0.000**		ARCH(1)	0.051	**0.000**	
		GARCH(1)	0.292			)	**0.005**			GARCH(1)	0.071		
	e(AUT/NLD)	ARCH(1)	**0.009**	**0.000**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Portugal / Germany	Number observations	133				311				221			
	Lags	24				13				13			
	Cointegration rank at significance level 5%	2				2				0			
	Trace statistics	81.864	21.356	**2.940**		31.187	16.289	**3.333**		**8.038**	1.382	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.271	1.271	1.101	1.101	1.354	1.104	1.060	1.060	1.000	0.986	0.920	0.906
	Cointegration vector	CPI(GER)	CPI(PRT)	e(GER/PRT)	Constant	CPI(GER)	CPI(PRT)	e(GER/PRT)	Constant	CPI(GER)	CPI(PRT)	e(GER/PRT)	Constant
	Coefficient	1.000	-1.233	-1.404	0.719	1.000	-0.625	-0.687	-1.846	1.000	-0.881	-	-0.560
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.013	-0.002	0.162		-0.003	-0.012	0.041		-0.009	0.012	-	
	Economically sensible	Yes	No	Yes	-	Yes	No	Yes	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	1				0				4			
	Jarque-Bera: p-value	0.002				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.388	0.684		ARCH(1)	**0.002**	**0.000**		ARCH(1)	0.135	0.250	
		GARCH(1)	0.998			)	**0.000**			GARCH(1)	0.680		
	CPI(PRT)	ARCH(1)	0.388	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.585	0.777	
		GARCH(1)	0.998			)	**0.000**			GARCH(1)	0.849		
	e(AUT/PRT)	ARCH(1)	0.127	**0.000**		ARCH(1)	**0.004**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.026**			)	0.079			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / Germany	Number observations	154				311				221			
	Lags	3				15				24			
	Cointegration rank at significance level 5%	0				-				-			
	Trace statistics	**19.739**	8.259	2.925		40.192	20.016	4.803		22.155	3.772	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.009	1.000	1.000	0.523	1.247	1.247	1.043	1.043	1.027	1.027	1.003	1.000
	Cointegration vector	CPI(GER)	CPI(ESP)	e(GER/ESP)	Constant	CPI(GER)	CPI(ESP)	e(GER/ESP)	Constant	CPI(GER)	CPI(ESP)	e(GER/ESP)	Constant
	Coefficient	1.000	-0.426	-0.199	-2.410	1.000	1.261	4.234	-9.467	1.000	-0.294	-	-3.272
	Economically sensible	Yes	Yes	Yes	-	Yes	No	No	-	Yes	Yes	-	-
	Adjustment factor	0.022	0.019	0.027		0.001	0.003	-0.009		0.012	-0.022	-	
	Economically sensible	No	Yes	Yes	-	No	-	-	-	No	No	-	-
	VECM residual auto-correlation at lag	1				1				0			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.451	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.408	**0.000**	
		GARCH(1)	0.996			)	**0.000**			GARCH(1)	**0.000**		
	CPI(ESP)	ARCH(1)	0.800	0.935		ARCH(1)	**0.001**	**0.000**		ARCH(1)	0.309	**0.000**	
		GARCH(1)	0.884			)	**0.000**			GARCH(1)	0.090		
	e(AUT/ESP)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Ireland / Greece	Number observations	143				311				221			
	Lags	14				15				14			
	Cointegration rank at significance level 5%	1				-				-			
	Trace statistics	45.668	**15.251**	1.647		58.448	31.760	11.906		25.933	11.141	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.076	1.076	1.036	1.036	1.054	1.054	1.000	1.000	1.000	0.984	0.984	0.980
	Cointegration vector	CPI(GRC)	CPI(IRL)	e(GRC/IRL)	Constant	CPI(GRC)	CPI(IRL)	e(GRC/IRL)	Constant	CPI(GRC)	CPI(IRL)	e(GRC/IRL)	Constant
	Coefficient	1.000	-0.544	0.000	0.751	1.000	-1.146	-0.966	0.490	1.000	-1.041	-	0.208
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.230	-0.034	0.027		-0.009	0.017	-0.017		-0.027	-0.001	-	
	Economically sensible	Yes	No	Yes	-	Yes	Yes	No	-	Yes	No	-	-
	VECM residual auto-correlation at lag	0				2				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.620	0.125		ARCH(1)	**0.036**	**0.000**		ARCH(1)	0.387	0.320	
		GARCH(1)	0.410			)	0.265			GARCH(1)	0.586		
	CPI(IRL)	ARCH(1)	0.620	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.067	0.121	
		GARCH(1)	0.410			)	**0.001**			GARCH(1)	0.595		
	e(AUT/IRL)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

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	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Italy / Greece	Number observations	143				311				221			
	Lags	14				15				14			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**29.297**	7.444	0.299		56.465	28.109	11.580		**13.415**	2.169	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.006	1.006	1.000	1.000	1.064	1.064	1.046	1.046	1.003	1.000	0.999	0.966
	Cointegration vector	CPI(GRC)	CPI(ITA)	e(GRC/ITA)	Constant	CPI(GRC)	CPI(ITA)	e(GRC/ITA)	Constant	CPI(GRC)	CPI(ITA)	e(GRC/ITA)	Constant
	Coefficient	1.000	-0.581	1.074	2.108	1.000	-1.147	-1.301	0.526	1.000	-1.548	-	2.619
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.135	0.038	0.006		-0.003	0.007	-0.008		0.027	0.014	-	
	Economically sensible	Yes	Yes	-	-	Yes	Yes	No	-	No	Yes	-	-
	VECM residual auto-correlation at lag	1				2				2			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.550	0.083		ARCH(1)	0.094	**0.000**		ARCH(1)	0.137	**0.000**	
		GARCH(1)	0.183			)	0.336			GARCH(1)	0.057		
	CPI(ITA)	ARCH(1)	0.550	**0.000**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	0.240	**0.000**	
		GARCH(1)	0.183			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ITA)	ARCH(1)	**0.005**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	0.381			GARCH(1)	-		

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Luxem-bourg / Greece	Number observations	155				311				221			
	Lags	2				15				13			
	Cointegration rank at significance level 5%	1				-				0			
	Trace statistics	32.822	**10.840**	1.723		35.896	18.403	7.129		**6.058**	1.925	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.938	0.329	1.203	1.203	1.105	1.105	1.007	1.000	0.980	0.958
	Cointegration vector	CPI(GRC)	CPI(LUX)	e(GRC/LUX)	Constant	CPI(GRC)	CPI(LUX)	e(GRC/LUX)	Constant	CPI(GRC)	CPI(LUX)	e(GRC/LUX)	Constant
	Coefficient	1.000	-0.916	-0.052	2.328	1.000	-1.654	-0.946	3.344	1.000	-1.664	-	3.188
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.140	-0.033	-0.030		0.004	0.007	0.009		0.012	0.005	-	
	Economically sensible	Yes	No	No	-	No	Yes	Yes	-	No	Yes	-	-
	VECM residual auto-correlation at lag	2				3				5			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.524	**0.001**		ARCH(1)	0.180	**0.015**		ARCH(1)	0.118	**0.032**	
		GARCH(1)	0.106			)	0.443			GARCH(1)	0.290		
	CPI(LUX)	ARCH(1)	0.524	**0.000**		ARCH(1)	**0.021**	**0.000**		ARCH(1)	**0.024**	**0.000**	
		GARCH(1)	0.106			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/LUX)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Nether-lands / Greece	Number observations	133				311				221			
	Lags	24				15				13			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**18.953**	6.406	0.166		37.228	16.170	5.414		**9.119**	1.623	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.044	1.044	1.026	1.026	1.102	1.102	1.100	1.100	1.000	1.000	0.965	0.956
	Cointegration vector	CPI(GRC)	CPI(NLD)	e(GRC/NLD)	Constant	CPI(GRC)	CPI(NLD)	e(GRC/NLD)	Constant	CPI(GRC)	CPI(NLD)	e(GRC/NLD)	Constant
	Coefficient	1.000	-0.608	-0.833	-0.896	1.000	-1.457	-1.087	2.271	1.000	-3.515	-	12.019
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.079	-0.124	-0.030		0.007	0.004	0.070		0.004	0.002	-	
	Economically sensible	Yes	No	No	-	No	Yes	Yes	-	No	Yes	-	-
	VECM residual auto-correlation at lag	3				1				0			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.124	**0.000**		ARCH(1)	0.157	**0.000**		ARCH(1)	0.426	0.325	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.569		
	CPI(NLD)	ARCH(1)	**0.001**	**0.000**		ARCH(1)	0.127	**0.000**		ARCH(1)	**0.044**	**0.000**	
		GARCH(1)	**0.000**			)	0.090			GARCH(1)	**0.000**		
	e(AUT/NLD)	ARCH(1)	0.260	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Portugal / Greece	Number observations	135				311				221			
	Lags	22				21				14			
	Cointegration rank at significance level 5%	-				-				0			
	Trace statistics	63.882	24.725	4.483		44.366	16.238	7.576		**8.240**	2.326	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.190	1.190	1.159	1.128	1.053	1.053	1.045	1.045	1.000	0.980	0.975	0.954
	Cointegration vector	CPI(GRC)	CPI(PRT)	e(GRC/PRT)	Constant	CPI(GRC)	CPI(PRT)	e(GRC/PRT)	Constant	CPI(GRC)	CPI(PRT)	e(GRC/PRT)	Constant
	Coefficient	1.000	0.112	1.402	0.623	1.000	-0.439	3.453	-3.386	1.000	-0.481	-	-2.447
	Economically sensible	Yes	No	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.001	0.162	0.004		-0.003	-0.003	-0.002		-0.008	-0.003	-	
	Economically sensible	No	-	-	-	Yes	No	-	-	Yes	No	-	-
	VECM residual auto-correlation at lag	0				3				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.041**	**0.000**		ARCH(1)	0.192	**0.000**		ARCH(1)	0.144	**0.021**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.353		
	CPI(PRT)	ARCH(1)	**0.041**	**0.000**		ARCH(1)	**0.002**	**0.000**		ARCH(1)	0.216	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/PRT)	ARCH(1)	**0.041**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / Greece	Number observations	156				311				221			
	Lags	1				15				14			
	Cointegration rank at significance level 5%	0				1				0			
	Trace statistics	**23.534**	6.553	1.484		54.241	**15.184**	5.021		**10.639**	2.790	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.904	0.978	1.078	1.078	1.037	1.037	1.000	0.976	0.973	0.973
	Cointegration vector	CPI(GRC)	CPI(ESP)	e(GRC/ESP)	Constant	CPI(GRC)	CPI(ESP)	e(GRC/ESP)	Constant	CPI(GRC)	CPI(ESP)	e(GRC/ESP)	Constant
	Coefficient	1.000	-0.421	-0.218	0.018	1.000	-0.836	-0.500	-0.941	1.000	-1.315	-	1.538
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	-0.091	-0.043	0.105		-0.012	-0.010	-0.028		0.013	0.017	-	
	Economically sensible	Yes	No	Yes	-	Yes	No	No	-	No	Yes	-	-
	VECM residual auto-correlation at lag	4				3				2			
	Jarque-Bera: p-value	0.000				0.000				0.009			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.431	**0.001**		ARCH(1)	**0.031**	**0.000**		ARCH(1)	0.073	**0.006**	
		GARCH(1)	0.074			)	**0.000**			GARCH(1)	0.252		
	CPI(ESP)	ARCH(1)	0.479	0.362		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.218	**0.000**	
		GARCH(1)	0.435			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ESP)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Italy / Ireland	Number observations	155				311				221			
	Lags	2				10				14			
	Cointegration rank at significance level 5%	0				1				0			
	Trace statistics	**21.146**	10.772	3.368		29.807	**12.018**	5.168		**15.183**	3.348	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.007	1.000	1.000	0.637	1.003	1.000	1.000	0.985	1.000	0.990	0.952	0.952
	Cointegration vector	CPI(IRL)	CPI(ITA)	e(IRL/ITA)	Constant	CPI(IRL)	CPI(ITA)	e(IRL/ITA)	Constant	CPI(IRL)	CPI(ITA)	e(IRL/ITA)	Constant
	Coefficient	1.000	0.698	5.379	-3.431	1.000	-1.164	-0.320	0.773	1.000	0.641	-	-7.745
	Economically sensible	Yes	No	No	-	Yes	Yes	Yes	-	Yes	No	-	-
	Adjustment factor	0.001	0.000	0.001		0.005	0.006	-0.001		-0.004	0.000	-	
	Economically sensible	No	-	-	-	No	Yes	No	-	Yes	-	-	-
	VECM residual auto-correlation at lag	2				1				3			
	Jarque-Bera: p-value	0.000				0.000				0.712			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.837	0.976		ARCH(1)	0.570	**0.000**		ARCH(1)	0.348	0.622	
		GARCH(1)	0.996			)	**0.000**			GARCH(1)	0.933		
	CPI(ITA)	ARCH(1)	0.416	0.122		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.295	**0.039**	
		GARCH(1)	0.514			)	**0.000**			GARCH(1)	0.304		
	e(AUT/ITA)	ARCH(1)	0.416	**0.000**		ARCH(1)	0.441	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.514			)	0.077			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Portugal / Ireland	Number observations	155				311				221			
	Lags	2				24				18			
	Cointegration rank at significance level 5%	-				-				0			
	Trace statistics	38.768	16.327	5.262		71.298	24.341	6.338		**11.995**	2.194	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.002	1.000	1.000	0.643	1.044	1.044	1.014	1.014	1.000	0.988	0.988	0.978
	Cointegration vector	CPI(IRL)	CPI(PRT)	e(IRL/PRT)	Constant	CPI(IRL)	CPI(PRT)	e(IRL/PRT)	Constant	CPI(IRL)	CPI(PRT)	e(IRL/PRT)	Constant
	Coefficient	1.000	-0.471	0.205	-1.743	1.000	-0.289	0.787	-2.974	1.000	-0.495	-	-2.363
	Economically sensible	Yes	Yes	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.005	0.029	0.004		-0.015	0.049	-0.116		-0.011	-0.001	-	
	Economically sensible	No	Yes	-	-	Yes	Yes	-	-	Yes	No	-	-
	VECM residual auto-correlation at lag	3				3				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.702	0.924		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.177	0.314	
		GARCH(1)	0.990			)	**0.004**			GARCH(1)	0.765		
	CPI(PRT)	ARCH(1)	0.702	**0.000**		ARCH(1)	**0.014**	**0.000**		ARCH(1)	0.588	0.302	
		GARCH(1)	0.990			)	**0.000**			GARCH(1)	0.377		
	e(AUT/PRT)	ARCH(1)	0.702	**0.000**		ARCH(1)	**0.014**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.990			)	**0.000**			GARCH(1)	-		

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / Ireland	Number observations	148				311				221			
	Lags	9				20				14			
	Cointegration rank at significance level 5%	1				1				-			
	Trace statistics	54.269	**9.756**	1.652		46.296	**15.197**	6.984		17.649	5.978	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.127	1.127	1.000	1.000	1.070	1.070	1.068	1.042	1.000	0.994	0.979	0.951
	Cointegration vector	CPI(IRL)	CPI(ESP)	e(IRL/ESP)	Constant	CPI(IRL)	CPI(ESP)	e(IRL/ESP)	Constant	CPI(IRL)	CPI(ESP)	e(IRL/ESP)	Constant
	Coefficient	1.000	-1.341	56.408	-12.970	1.000	-1.663	1.686	2.891	1.000	-4.548	-	16.899
	Economically sensible	Yes	Yes	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.000	0.001	-0.017		0.003	0.003	0.016		0.001	0.001	-	
	Economically sensible	Yes	Yes	-	-	No	Yes	-	-	No	Yes	-	-
	VECM residual auto-correlation at lag	0				1				2			
	Jarque-Bera: p-value	0.000				0.000				0.562			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.216	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.095	0.193	
		GARCH(1)	**0.000**			)	0.141			GARCH(1)	0.762		
	CPI(ESP)	ARCH(1)	0.514	0.203		ARCH(1)	**0.022**	**0.000**		ARCH(1)	0.074	**0.000**	
		GARCH(1)	0.357			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ESP)	ARCH(1)	0.514	**0.000**		ARCH(1)	**0.016**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.357			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Luxembourg / Italy	Number observations	155				311				221			
	Lags	2				15				14			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**24.806**	9.167	1.901		62.539	27.569	5.697		**9.626**	3.914	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.991	0.415	1.274	1.274	1.066	1.066	1.000	0.985	0.985	0.945
	Cointegration vector	CPI(ITA)	CPI(LUX)	e(ITA/LUX)	Constant	CPI(ITA)	CPI(LUX)	e(ITA/LUX)	Constant	CPI(ITA)	CPI(LUX)	e(ITA/LUX)	Constant
	Coefficient	1.000	-1.128	2.335	4.964	1.000	-2.261	0.066	5.406	1.000	-0.894	-	-0.472
	Economically sensible	Yes	Yes	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.005	0.019	0.001		0.000	0.021	-0.054		-0.025	0.017	-	
	Economically sensible	No	Yes	-	-	Yes	Yes	-	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	2				2				4			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.336	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.584	0.076	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.124		
	CPI(LUX)	ARCH(1)	0.452	0.664		ARCH(1)	**0.008**	**0.000**		ARCH(1)	0.100	**0.000**	
		GARCH(1)	0.799			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/LUX)	ARCH(1)	**0.001**	**0.000**		ARCH(1)	**0.011**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Netherlands / Italy	Number observations	155				311				221			
	Lags	2				13				16			
	Cointegration rank at significance level 5%	0				1				0			
	Trace statistics	**29.294**	13.221	3.944		37.910	**14.682**	5.630		**9.914**	3.026	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.942	0.397	1.323	1.323	1.032	1.032	1.030	1.030	1.000	0.993
	Cointegration vector	CPI(ITA)	CPI(NLD)	e(ITA/NLD)	Constant	CPI(ITA)	CPI(NLD)	e(ITA/NLD)	Constant	CPI(ITA)	CPI(NLD)	e(ITA/NLD)	Constant
	Coefficient	1.000	-1.120	10.837	19.917	1.000	-5.089	1.885	17.450	1.000	-1.266	-	1.281
	Economically sensible	Yes	Yes	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.002	0.007	-0.005		-0.002	0.000	-0.029		0.006	0.021	-	
	Economically sensible	No	Yes	-	-	Yes	Yes	-	-	No	Yes	-	-
	VECM residual auto-correlation at lag	2				3				2			
	Jarque-Bera: p-value	0.000				0.000				0.067			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.415	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.385	0.652	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	0.917		
	CPI(NLD)	ARCH(1)	0.197	**0.000**		ARCH(1)	0.067	**0.007**		ARCH(1)	0.385	**0.000**	
		GARCH(1)	**0.000**			)	0.332			GARCH(1)	0.917		
	e(AUT/NLD)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Portugal / Italy	Number observations	133				311				221			
	Lags	24				23				13			
	Cointegration rank at significance level 5%	-				2				0			
	Trace statistics	106.369	41.017	16.456		50.178	21.841	**3.538**		**8.931**	4.171	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.331	1.301	1.107	1.107	1.067	1.067	1.035	1.035	1.000	0.976	0.964	0.964
	Cointegration vector	CPI(ITA)	CPI(PRT)	e(ITA/PRT)	Constant	CPI(ITA)	CPI(PRT)	e(ITA/PRT)	Constant	CPI(ITA)	CPI(PRT)	e(ITA/PRT)	Constant
	Coefficient	1.000	0.097	20.238	-17.559	1.000	-0.460	0.578	-2.325	1.000	-0.909	-	-0.432
	Economically sensible	Yes	No	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.001	0.070	-0.001		-0.005	-0.013	-0.061		-0.017	0.008	-	
	Economically sensible	No	-	-	-	Yes	No	-	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	1				5				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	**0.007**	**0.027**		ARCH(1)	**0.004**	**0.000**		ARCH(1)	0.253	0.516	
		GARCH(1)	0.946			)	**0.000**			GARCH(1)	0.951		
	CPI(PRT)	ARCH(1)	**0.007**	**0.000**		ARCH(1)	**0.010**	**0.000**		ARCH(1)	0.530	0.815	
		GARCH(1)	0.946			)	**0.000**			GARCH(1)	0.945		
	e(AUT/PRT)	ARCH(1)	**0.007**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.946			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / Italy	Number observations	155				311				221			
	Lags	2				19				14			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**26.016**	5.956	0.095		55.578	23.134	4.339		**13.116**	2.951	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.988	0.282	2.013	1.018	1.018	1.000	1.004	1.000	0.964	0.964
	Cointegration vector	CPI(ITA)	CPI(ESP)	e(ITA/ESP)	Constant	CPI(ITA)	CPI(ESP)	e(ITA/ESP)	Constant	CPI(ITA)	CPI(ESP)	e(ITA/ESP)	Constant
	Coefficient	1.000	-0.600	-0.029	-0.791	1.000	-0.741	0.127	-1.274	1.000	-0.624	-	-1.775
	Economically sensible	Yes	Yes	Yes	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.030	0.114	-0.012		-0.005	-0.006	-0.058		-0.008	-0.027	-	
	Economically sensible	No	Yes	No	-	Yes	No	-	-	Yes	No	-	-
	VECM residual auto-correlation at lag	0				1				2			
	Jarque-Bera: p-value	0.000				0.000				0.762			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.393	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.235	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	**0.000**		
	CPI(ESP)	ARCH(1)	**0.018**	**0.000**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	0.121	**0.000**	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ESP)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.043**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Netherlands / Luxembourg	Number observations	156				311				221			
	Lags	1				13				13			
	Cointegration rank at significance level 5%	-				0				0			
	Trace statistics	48.931	21.367	6.923		**28.561**	8.452	3.696		**11.766**	2.523	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.807	0.950	1.023	1.023	1.000	1.000	1.000	0.972	0.922	0.922
	Cointegration vector	CPI(LUX)	CPI(NLD)	e(LUX/NLD)	Constant	CPI(LUX)	CPI(NLD)	e(LUX/NLD)	Constant	CPI(LUX)	CPI(NLD)	e(LUX/NLD)	Constant
	Coefficient	1.000	-0.614	0.537	-0.933	1.000	-0.984	-0.903	-0.050	1.000	-1.294	-	1.397
	Economically sensible	Yes	Yes	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.024	0.268	-0.098		-0.038	0.006	0.043		0.006	0.032	-	
	Economically sensible	No	Yes	-	-	Yes	Yes	Yes	-	No	Yes	-	-
	VECM residual auto-correlation at lag	3				0				1			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.326	**0.000**		ARCH(1)	0.074	**0.000**		ARCH(1)	0.215	**0.000**	
		GARCH(1)	0.109			)	**0.000**			GARCH(1)	**0.033**		
	CPI(NLD)	ARCH(1)	0.074	**0.000**		ARCH(1)	0.084	**0.000**		ARCH(1)	0.197	0.429	
		GARCH(1)	**0.000**			)	0.081			GARCH(1)	0.961		
	e(AUT/NLD)	ARCH(1)	0.074	**0.000**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.000**			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Portugal / Luxembourg	Number observations	155				311				221			
	Lags	2				21				13			
	Cointegration rank at significance level 5%	1				-				0			
	Trace statistics	34.807	**11.046**	3.834		61.051	17.186	7.725		**10.503**	3.152	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.006	1.000	1.000	0.059	1.334	1.136	1.057	1.057	1.000	0.976	0.959	0.959
	Cointegration vector	CPI(LUX)	CPI(PRT)	e(LUX/PRT)	Constant	CPI(LUX)	CPI(PRT)	e(LUX/PRT)	Constant	CPI(LUX)	CPI(PRT)	e(LUX/PRT)	Constant
	Coefficient	1.000	3.287	12.969	-30.866	1.000	1.026	2.048	-8.670	1.000	-1.033	-	0.112
	Economically sensible	Yes	No	No	-	Yes	No	No	-	Yes	Yes	-	-
	Adjustment factor	0.001	0.004	-0.001		-0.004	-0.023	-0.028		-0.014	0.016	-	
	Economically sensible	No	-	-	-	Yes	-	-	-	Yes	Yes	-	-
	VECM residual auto-correlation at lag	3				0				3			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.775	0.909		ARCH(1)	**0.007**	**0.000**		ARCH(1)	0.089	**0.000**	
		GARCH(1)	0.866			)	**0.000**			GARCH(1)	**0.000**		
	CPI(PRT)	ARCH(1)	0.539	0.074		ARCH(1)	**0.011**	**0.000**		ARCH(1)	0.264	0.535	
		GARCH(1)	0.161			)	**0.000**			GARCH(1)	0.979		
	e(AUT/PRT)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.503			)	**0.045**			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components

	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / Luxem-bourg	Number observations	155				311				221			
	Lags	2				19				19			
	Cointegration rank at significance level 5%	0				-				-			
	Trace statistics	**20.926**	8.101	1.440		67.118	17.256	5.314		17.787	4.232	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.994	0.067	1.295	1.295	1.177	1.177	1.037	1.000	0.977	0.977
	Cointegration vector	CPI(LUX)	CPI(ESP)	e(LUX/ESP)	Constant	CPI(LUX)	CPI(ESP)	e(LUX/ESP)	Constant	CPI(LUX)	CPI(ESP)	e(LUX/ESP)	Constant
	Coefficient	1.000	0.352	1.289	-4.722	1.000	-0.373	0.054	-2.751	1.000	-0.492	-	-2.373
	Economically sensible	Yes	No	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	0.008	0.007	-0.012		-0.025	-0.032	-0.137		-0.008	-0.020	-	
	Economically sensible	No	-	-	-	Yes	No	-	-	Yes	No	-	-
	VECM residual auto-correlation at lag	1				3				3			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.795	0.947		ARCH(1)	**0.016**	**0.000**		ARCH(1)	0.123	**0.000**	
		GARCH(1)	0.897			)	**0.000**			GARCH(1)	**0.000**		
	CPI(ESP)	ARCH(1)	0.577	0.624		ARCH(1)	**0.002**	**0.000**		ARCH(1)	0.286	**0.000**	
		GARCH(1)	0.706			)	**0.000**			GARCH(1)	**0.004**		
	e(AUT/ESP)	ARCH(1)	0.577	**0.000**		ARCH(1)	**0.001**	**0.005**		ARCH(1)	-	-	
		GARCH(1)	0.706			)	0.968			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Portugal / Nether-lands	Number observations	134				311				221			
	Lags	23				13				13			
	Cointegration rank at significance level 5%	1				-				0			
	Trace statistics	39.159	**8.474**	2.649		57.226	20.514	6.137		**6.497**	1.617	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.096	1.096	1.037	1.037	1.467	1.076	1.076	1.034	1.000	0.998	0.993	0.942
	Cointegration vector	CPI(NLD)	CPI(PRT)	e(NLD/PRT)	Constant	CPI(NLD)	CPI(PRT)	e(NLD/PRT)	Constant	CPI(NLD)	CPI(PRT)	e(NLD/PRT)	Constant
	Coefficient	1.000	1.530	2.018	-7.840	1.000	2.659	4.851	-14.889	1.000	-1.363	-	1.756
	Economically sensible	Yes	No	No	-	Yes	No	No	-	Yes	Yes	-	-
	Adjustment factor	0.007	0.030	-0.006		0.000	0.001	-0.021		0.002	0.007	-	
	Economically sensible	No	-	-	-	Yes	-	-	-	No	Yes	-	-
	VECM residual auto-correlation at lag	0				2				0			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.336	**0.000**		ARCH(1)	0.154	**0.000**		ARCH(1)	0.591	0.690	
		GARCH(1)	**0.003**			)	0.089			GARCH(1)	0.706		
	CPI(PRT)	ARCH(1)	0.336	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	0.170	**0.000**	
		GARCH(1)	**0.003**			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/PRT)	ARCH(1)	0.154	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	0.089			)	0.345			GARCH(1)	-		

Johansen Cointegration Tests for Real Exchange Rate Components													
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / Nether-lands	Number observations	156				311				221			
	Lags	1				19				16			
	Cointegration rank at significance level 5%	0				2				0			
	Trace statistics	**19.204**	9.838	1.385		41.292	17.756	**2.698**		**14.794**	2.330	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.000	1.000	0.924	0.959	1.222	1.222	1.042	1.042	1.001	1.001	1.000	0.994
	Cointegration vector	CPI(NLD)	CPI(ESP)	e(NLD/ESP)	Constant	CPI(NLD)	CPI(ESP)	e(NLD/ESP)	Constant	CPI(NLD)	CPI(ESP)	e(NLD/ESP)	Constant
	Coefficient	1.000	-0.319	1.254	-4.377	1.000	-0.103	0.587	-3.845	1.000	-0.261	-	-3.543
	Economically sensible	Yes	Yes	No	-	Yes	Yes	No	-	Yes	Yes	-	-
	Adjustment factor	-0.010	0.025	-0.046		-0.010	0.012	-0.184		-0.005	-0.009	-	
	Economically sensible	Yes	Yes	-	-	Yes	Yes	-	-	Yes	No	-	-
	VECM residual auto-correlation at lag	1				1				3			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.066	**0.000**		ARCH(1)	0.091	0.143		ARCH(1)	**0.027**	**0.000**	
		GARCH(1)	**0.000**			)	0.668			GARCH(1)	0.711		
	CPI(ESP)	ARCH(1)	0.462	0.655		ARCH(1)	**0.010**	**0.000**		ARCH(1)	0.704	0.061	
		GARCH(1)	0.777			)	**0.000**			GARCH(1)	0.256		
	e(AUT/ESP)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.027**	**0.032**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	0.711			GARCH(1)	-		
	Period	1960:1 - 1972:12				1973:1 - 1998:12				1999:1 - 2017:5			
Spain / Portugal	Number observations	156				311				221			
	Lags	1				21				15			
	Cointegration rank at significance level 5%	0				-				0			
	Trace statistics	**24.941**	11.440	2.068		44.887	20.492	3.943		**14.288**	4.536	-	
	5% critical values	29.680	15.410	3.760		29.680	15.410	3.760		15.410	3.760	-	
	4 largest moduli of eigenvalues	1.004	1.000	1.000	0.942	1.066	1.066	1.039	1.039	1.003	1.000	0.987	0.987
	Cointegration vector	CPI(PRT)	CPI(ESP)	e(PRT/ESP)	Constant	CPI(PRT)	CPI(ESP)	e(PRT/ESP)	Constant	CPI(PRT)	CPI(ESP)	e(PRT/ESP)	Constant
	Coefficient	1.000	1.042	2.874	1.688	1.000	-0.753	-0.338	-1.523	1.000	-0.959	-	-0.178
	Economically sensible	Yes	No	No	-	Yes	Yes	Yes	-	Yes	Yes	-	-
	Adjustment factor	0.007	0.003	-0.002		-0.008	-0.005	0.004		0.012	0.049	-	
	Economically sensible	No	-	-	-	Yes	No	Yes	-	No	Yes	-	-
	VECM residual auto-correlation at lag	0				2				3			
	Jarque-Bera: p-value	0.000				0.000				0.000			
	Heteroskedasticisty test of VECM residuals	Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value		Prozess	Single significance: p-value	Joint significance: p-value	
	CPI(AUT)	ARCH(1)	0.471	**0.000**		ARCH(1)	**0.001**	**0.000**		ARCH(1)	**0.000**	**0.000**	
		GARCH(1)	0.865			)	**0.000**			GARCH(1)	**0.001**		
	CPI(ESP)	ARCH(1)	0.267	**0.016**		ARCH(1)	**0.034**	**0.000**		ARCH(1)	0.365	**0.000**	
		GARCH(1)	0.203			)	**0.000**			GARCH(1)	**0.000**		
	e(AUT/ESP)	ARCH(1)	**0.000**	**0.000**		ARCH(1)	**0.000**	**0.000**		ARCH(1)	-	-	
		GARCH(1)	**0.000**			)	**0.001**			GARCH(1)	-		

Legend Appendix Table 12: Under "Cointegration rank at significance level 5%" a hyphen "-" indicates full rank of matrix Π , i.e. stationarity in levels of all variables. VEC lag selection according to Akaike's information criterion over a range of 24 month. A constant and orthogonalized seasonal indicators following Johansen (1995) are allowed. The 4 largest moduli of the eigenvalues of the VEC companion matrix are displayed. The modulus of a real eigenvalue is its absolute value. The modulus of a complex eigenvalue, a+b*i, is calculated according to $(a^2+b^2)^{0.5}$. The companion matrix of a VEC with n endogenous variables and r cointegrating equations has n − r unit eigenvalues. If the process is stable, the moduli of the remaining r eigenvalues are strictly less than unity. If there are moduli larger than unity, the dynamic process is unstable and the assumptions of the JC test are not fulfilled. The Jarque-Bera (1987) test is used to test for the H0 of a join normal distribution of the VEC residuals. A Wald tests is used to test for the joint significance of Arch and Garch parameters.