Complementary Appendix to the paper:

Do Euro Area Countries Respond Asymmetrically to the Common Monetary Policy?

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1 Introduction

In this Complementary Appendix we show results mentioned in the paper but which are of secondary importance. In Section 2, we show the list of variables included in the Factor model, as well as the source of, and the transformations applied to, each variable. In Section 3, we show results of the test for determining the number of (static) factors and of common shocks (dynamic factors). In Section 4, we show robustness of our results with respect to model specification, while in Section 5 we show robustness with respect to the identification scheme. In Section 6, we show the impulse response functions on the full sample 1983-2007, whereas in Section 7 we show results when estimating our model on the subsample 1983-1996 rather than 1983-1998. In Section 8, we estimate our model by imposing in the pre–1999 sample the identifying restrictions on the German short term rather than on the Euro Area interest rate. In Section 9, we report the estimated response to a monetary policy shock of the interest rate (on impact), and of GDP and CPI (maximum) for each of the papers, which estimate an impulse response to a monetary policy shock for the whole Euro Area, and which is cited in the paper. Finally, in Section 10 we report detailed statistics on Investments in Germany from 1992 to 2008.

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2 The Euro Area dataset

Belgium

N	dsmnemonic	Variable	Source	Unit	F.	SA	T
1	BGOCFGDPD	GDP (REAL)	OEO	2004Mil€	Q	1	3
2	BGOCFPCND	PRIVATE CONSUMPTION EXPENDITURE (REAL)	OEO	2004Mil€	Q	1	3
3	BGOCFINVD	GFCF (REAL)	OEO	2004Mil€	Q	1	3
4	BGOCFEGSD	EXPORTS OF GOODS & SERVICES (REAL)	OEO	2004Mil€	Q	1	3
5	BGOCFIGSD	IMPORTS OF GOODS & SERVICES (REAL)	OEO	2004Mil€	Q	1	3
6	BGOCFDGDE	GDP - IPD	OEO	2004=100	Q	1	4
7	BGOCFDCNE	PRIVATE CONSUMPTION - IPD	OEO	2004=100	Q	1	4
8	BGOCFDINE	GROSS DOMESTIC FIXED CAPITAL FORMATION - IPD	OEO	2004=100	Q	1	4
9	BGOCFEPCE	EXPORTS OF GOODS AND SERVICES - IPD	OEO	2004=100	Q	1	4
10	BGOCFIPCE	IMPORTS OF GOODS & SERVICES - IPD	OEO	2004=100	Q	1	4
11	BGOSLI12O	PASSENGER CAR REGISTRATIONS	MEI	Thous.	M	1	3
12	BGOBS076Q	BTS: MANUFACTURING, Capacity Utilization Judg.	MEI	%	Q	1	2
13	BGOCFEMPO	EMPLOYMENT	OEO	Thous.	Q	1	3
14	BGOCFUNRQ	UNEMPLOYMENT RATE	OEO	%	Q	1	2
15	BGOULC..T	UNIT LABOUR COSTS - TOTAL (TREND)	MEI	2005=100	Q	0	3
16	BGOULCC.T	U.L.C. - CONSTRUCTION (ISIC F) (TREND)	MEI	2005=100	Q	0	3
17	BGOULCM.T	U.L.C. - MANUFACTURING (ISIC D) (TREND)	MEI	2005=100	Q	0	3
18	BGOULCS.T	U.L.C. - MARKET SERVICES (ISIC GK) (TREND)	MEI	2005=100	Q	0	3
19	BGOULCF.T	U.L.C. - FINANCIAL & BUSINESS SERVICES (ISIC JK)(TR)	MEI	2005=100	Q	0	3
20	BGOCC011	REAL EFFECTIVE EXCHANGE RATES	MEI	2005=100	M	0	3
21	BGOSLI15G	TOTAL RETAIL TRADE (VOLUME)	MEI	2005=100	M	1	3
22	BGOPP017F	PPI MANUFACTURED GOODS	MEI	2005=100	M	2	4
23	BGOCP049F	CPI - HARMONISED	MEI	2005=100	M	2	4
24	BGOCP042F	CPI All items non-food non-energy	MEI	2005=100	M	2	4
25	BGOCP041F	CPI Energy	MEI	2005=100	M	2	4
26	BGOCFISTR	INTEREST RATE - SHORT TERM	OEO	%	Q	0	2
27	BGOCFILTR	INTEREST RATE - LONG TERM	OEO	%	Q	0	2
28	BGOSP001F	BEL SHARE PRICES ALL SHARES †	MEI	2005=100	M	0	3
29	BGOLC007E	HOURLY EARNINGS MALES: INDUSTRY(DISC.)	MEI	2005=100	Q	1	3
30	BGM1....A	M1 (EXCL. CURR IN CIRC.) CURN ‡	NCB	Mil€	M	2	4
31	BGM3....A	M3 (EXCL. CURR IN CIRC.) CURN ‡	NCB	Mil€	M	2	4

† Series backdated by data in Eickmeier (2009)
‡ Series backdated by Eurostat "DS-070950 Former series for euro area countries on monetary aggregates and credit"

France

N	dsmnemonic	Variable	Source	Unit	F.	SA	T
32	FROCFGDPD	GDP (REAL)	OEO	2000Mil€	Q	1	3
33	FROCFPCND	PRIVATE CONSUMPTION EXPENDITURE (REAL)	OEO	2000Mil€	Q	1	3
34	FROCFINVD	GFCF (REAL)	OEO	2000Mil€	Q	1	3
35	FROEX003D	Government final consumption expenditure	MEI	2000Mil€chd	Q	1	3
36	FROCFEGSD	EXPORTS OF GOODS & SERVICES (REAL)	OEO	2000Mil€	Q	1	3
37	FROCFIGSD	IMPORTS OF GOODS & SERVICES (REAL)	OEO	2000Mil€	Q	1	3
38	FROCFDGDE	GDP - IPD	OEO	2005=100	Q	1	4
39	FROCFDCNE	PRIVATE CONSUMPTION - IPD	OEO	2005=100	Q	1	4
40	FROCFDINE	GROSS DOMESTIC FIXED CAPITAL FORMATION - IPD	OEO	2005=100	Q	1	4
41	FROCFEPCE	EXPORTS OF GOODS AND SERVICES - IPD	OEO	2005=100	Q	1	4
42	FROCFIPCE	IMPORTS OF GOODS & SERVICES - IPD	OEO	2005=100	Q	1	4
43	FROSLI05O	TOTAL CAR REGISTRATIONS	MEI	Thous.	M	1	3
44	FROBS076Q	BTS: MANUFACTURING, Capacity Utilization Judg.	MEI	%	Q	1	2
45	FROCFEMPO	EMPLOYMENT	OEO	Thous.	Q	1	3
46	FROCFUNRQ	UNEMPLOYMENT RATE	OEO	%	Q	1	2
47	FROULC..T	UNIT LABOUR COSTS - TOTAL (TREND)	MEI	2005=100	Q	0	3
48	FROULCC.T	U.L.C. - CONSTRUCTION (ISIC F) (TREND)	MEI	2005=100	Q	0	3
49	FROULCM.T	U.L.C. - MANUFACTURING (ISIC D) (TREND)	MEI	2005=100	Q	0	3
50	FROULCS.T	U.L.C. - MARKET SERVICES (ISIC G K) (TREND)	MEI	2005=100	Q	0	3
51	FROULCF.T	U.L.C. - FINANCIAL & BUSINESS SERVICES (ISIC J K)(TR)	MEI	2005=100	Q	0	3
52	FROCC011	REAL EFFECTIVE EXCHANGE RATES	MEI	2005=100	M	0	3
53	FROSLI15G	TOTAL RETAIL TRADE (VOLUME)	MEI	2005=100	M	1	3
54	FROPP017F	PPI Manufactured products	MEI	2005=100	M	2	4
55	FROCP049F	CPI - HARMONISED	MEI	2005=100	M	2	4
56	FROCP042F	CPI NON FOOD NON ENERGY	MEI	2005=100	M	2	4
57	FROCP019F	CPI Food	MEI	2005=100	M	2	4
58	FROCP041F	CPI ENERGY	MEI	2005=100	M	2	4
59	FROCP054F	CPI Rent	MEI	2005=100	M	2	4
60	FROCFISTR	INTEREST RATE - SHORT TERM	OEO	%	Q	1	2
61	FROCFILTR	INTEREST RATE - LONG TERM	OEO	%	Q	1	2
62	FROSP001F	FRA SHARE PRICES SBF 250	MEI	2005=100	M	0	3
63	FROLC007E	HOURLY WAGE RATE: INDUSTRY(DISC.)	MEI	2005=100	Q	1	3
64	FRM1....A	M1 (NATIONAL CONTRIBUTION TO M1)	NCB	Mil€	M	2	4
65	FRM3....A	M3 (NATIONAL CONTRIBUTION TO M3)	NCB	Mil€	M	2	4

Germany

N	dsmnemonic	Variable	Source	Unit	F.	SA	T
66	BDOCFGDPD	GDP (REAL)	OEO	2000Mil€	Q	1	3
67	BDOCFPCND	PRIVATE CONSUMPTION EXPENDITURE (REAL)	OEO	2000Mil€	Q	1	3
68	BDOCFINVD	GFCF (REAL)	OEO	2000Mil€	Q	1	3
69	BDOEX003D	GOVERNMENT FINAL CONSUMPTION EXPENDITURE	MEI	2000Mil€chd	Q	1	3
70	BDOCFEGSD	EXPORTS OF GOODS & SERVICES (REAL)	OEO	2000Mil€	Q	1	3
71	BDOCFIGSD	IMPORTS OF GOODS & SERVICES (REAL)	OEO	2000Mil€	Q	1	3
72	BDOCFDGDE	GDP - IPD	OEO	2000=100	Q	1	4
73	BDOCFDCNE	PRIVATE CONSUMPTION - IPD	OEO	2000=100	Q	1	4
74	BDOCFDINE	GROSS DOMESTIC FIXED CAPITAL FORMATION - IPD	OEO	2000=100	Q	1	4
75	BDOCFEPCE	EXPORTS OF GOODS & SERVICES - IPD	OEO	2000=100	Q	1	4
76	BDOCFIPCE	IMPORTS OF GOODS & SERVICES - IPD	OEO	2000=100	Q	1	4
77	BDOSLI05O	TOTAL CAR REGISTRATIONS	MEI	Thous.	M	1	3
78	BDOBS076Q	BTS: MANUFACTURING, Capacity Utilization Judg.	MEI	%	Q	1	2
79	BDOCFEMPO	EMPLOYMENT	OEO	Thous.	Q	1	3
80	BDOCFUNRQ	UNEMPLOYMENT RATE	OEO	%	Q	1	2
81	BDOULC..T	UNIT LABOUR COSTS - TOTAL (TREND)	MEI	2005=100	Q	0	3
82	BDOULCC.T	U.L.C. - CONSTRUCTION (ISIC F) (TREND)	MEI	2005=100	Q	0	3
83	BDOULCM.T	U.L.C. - MANUFACTURING (ISIC D) (TREND)	MEI	2005=100	Q	0	3
84	BDOULCS.T	U.L.C. - MARKET SERVICES (ISIC GK) (TREND)	MEI	2005=100	Q	0	3
85	BDOULCF.T	U.L.C. - FINANCIAL & BUSINESS SERVICES (ISIC JK)(TR)	MEI	2005=100	Q	0	3
86	BDOCC011	Real Effective Exchange Rate	MEI	2005=100	M	0	3
87	BDOSLI15G	TOTAL RETAIL TRADE (VOLUME)	MEI	2005=100	M	1	3
88	BDOPP017F	PPI Manufacturing Industry	MEI	2005=100	M	2	4
89	BDOCP049F	CPI - HARMONISED	MEI	2005=100	M	2	4
90	BDOCP042F	CPI Non-food non-energy	MEI	2005=100	M	2	4
91	BDOCP019F	CPI Food + alcohol-free drinks (excl rest) / Index publicati	MEI	2005=100	M	2	4
92	BDOCP041F	CPI - ENERGY (EXCL. GASOLINE BEFORE 1991)	MEI	2005=100	M	2	4
93	BDOCP053F	CPI Housing - rental services	MEI	2005=100	M	2	4
94	BDOCFISTR	INTEREST RATE - SHORT TERM	OEO	%	Q	1	2
95	BDOCFILTR	INTEREST RATE - LONG TERM	OEO	%	Q	1	2
96	BDOSP001F	SHARE PRICES CDAX	MEI	2005=100	M	0	3
97	BDOLC007E	HOURLY EARNINGS: MANUFACTURING	MEI	2005=100	Q	1	3
98	BDM1....A	M! - GERMAN CONTRIBUTION TO EURO M1	NCB	Bil€	M	2	4
99	BDM3....A	M3 - GERMAN CONTRIBUTION TO EURO M3	NCB	Bil€	M	2	4

Italy

N	dsmnemonic	Variable	Source	Unit	F.	SA	T
100	ITOCFGDPD	GDP (REAL)	OEO	2000Mil€	Q	1	3
101	ITOCFPCND	PRIVATE CONSUMPTION EXPENDITURE (REAL)	OEO	2000Mil€	Q	1	3
102	ITOEX004D	GFCF	MEI	2000Mil€chd	Q	1	3
103	ITOEX003D	GOVERNMENT FINAL CONSUMPTION EXPENDITURE	MEI	2000Mil€chd	Q	1	3
104	ITOCFEGSD	EXPORTS OF GOODS & SERVICES (REAL)	OEO	2000Mil€	Q	1	3
105	ITOCFIGSD	IMPORTS OF GOODS & SERVICES (REAL)	OEO	2000Mil€	Q	1	3
106	ITOCFDGDE	GDP - IPD	OEO	2000=100	Q	1	4
107	ITOCFDINE	GROSS DOMESTIC FIXED CAPITAL FORMATION - IPD	OEO	2000=100	Q	1	4
108	ITOCFDCNE	PRIVATE CONSUMPTION - IPD	OEO	2000=100	Q	1	4
109	ITOCFEPCE	EXPORTS OF GOODS & SERVICES - IPD	OEO	2000=100	Q	1	4
110	ITOCFIPCE	IMPORTS OF GOODS & SERVICES - IPD	OEO	2000=100	Q	1	4
111	ITOSLI05O	TOTAL CAR REGISTRATIONS	MEI	Thous.	M	1	3
112	ITOBS076Q	BTS: MANUFACTURING, Capacity Utilization Judg.	MEI	%	Q	1	2
113	ITOCFEMPO	EMPLOYMENT	OEO	Thous.	Q	1	3
114	ITOCFUNRQ	UNEMPLOYMENT RATE	OEO	%	Q	1	2
115	ITOULC..T	UNIT LABOUR COSTS - TOTAL (TREND)	MEI	2005=100	Q	0	3
116	ITOULCC.T	U.L.C. - CONSTRUCTION (ISIC F) (TREND)	MEI	2005=100	Q	0	3
117	ITOULCM.T	U.L.C. - MANUFACTURING (ISIC D) (TREND)	MEI	2005=100	Q	0	3
118	ITOULCS.T	U.L.C. - MARKET SERVICES (ISIC GK) (TREND)	MEI	2005=100	Q	0	3
119	ITOULCF.T	U.L.C. - FINANCIAL & BUSINESS SERVICES (ISIC JK)(TR)	MEI	2005=100	Q	0	3
120	ITOCC011	REAL EFFECTIVE EXCHANGE RATE - CPI BASED	MEI	2005=100	M	0	3
121	ITRETTOTF	IT RETAIL SALES NADJ	X	X	M	2	3
122	ITOPP017F	PPI(DISC.)	MEI	2005=100	M	2	4
123	ITOCP049F	CPI - HARMONISED	MEI	2005=100	M	2	4
124	ITOCP042F	CPI - EXCLUDING FOOD & ENERGY	MEI	2005=100	M	2	4
125	ITOCP019F	CPI - FOOD	MEI	2005=100	M	2	4
126	ITOCP041F	CPI - ENERGY	MEI	2005=100	M	2	4
127	ITOCP057F	CPI - HOUSING	MEI	2005=100	M	2	4
128	ITOCFISTR	INTEREST RATE - SHORT TERM: 3 MONTH EURIBOR	OEO	%	Q	0	2
129	ITOCFILTR	INTEREST RATE - LONG TERM: 10 YR TREASURY BONDS	OEO	%	Q	0	2
130	ITOSP001F	SHARE PRICES - ISE MIB STORICO	MEI	2005=100	M	0	3
131	ITOLC007E	HOURLY WAGE RATE : INDUSTRY(DISC.)	MEI	2005=100	M	1	3
132	ITM1....A	M1 - ITALIAN CONTRIBUTION TO EURO M1	NCB	Mil€	M	2	4
133	ITM3....A	M3 - ITALIAN CONTRIBUTION TO EURO M3	NCB	Mil€	M	2	4

Netherlands

N	dsmnemonic	Variable	Source	Unit	F.	SA	T
134	NLOCFGDPD	GDP (REAL)	OEO	2001Mil€	Q	1	3
135	NLOCFPCND	PRIVATE CONSUMPTION EXPENDITURE (REAL)	OEO	2001Mil€	Q	1	3
136	NLOCFINVD	GFCF (REAL)	OEO	2001Mil€	Q	1	3
137	NLOCFEGSD	EXPORTS OF GOODS & SERVICES (REAL)	OEO	2001Mil€	Q	1	3
138	NLOCFIGSD	IMPORTS OF GOODS & SERVICES (REAL)	OEO	2001Mil€	Q	1	3
139	NLOCFDGDE	GDP - IPD	OEO	2001=100	Q	1	4
140	NLOCFDCNE	PRIVATE CONSUMPTION - IPD	OEO	2001=100	Q	1	4
141	NLOCFDINE	GROSS DOMESTIC FIXED CAPITAL FORMATION - IPD	OEO	2001=100	Q	1	4
142	NLOCFEPCE	EXPORTS OF GOODS & SERVICES - IPD	OEO	2001=100	Q	1	4
143	NLOCFIPCE	IMPORTS OF GOODS & SERVICES - IPD	OEO	2001=100	Q	1	4
144	NLOSLI12O	PASSENGER CAR REGISTRATIONS	MEI	Thous.	M	1	3
145	NLOBS076Q	BTS: MANUFACTURING, Capacity Utilization Judg.	MEI	%	Q	1	2
146	NLOCFEMPO	EMPLOYMENT	OEO	Thous.	Q	1	3
147	NLOCFUNRQ	UNEMPLOYMENT RATE	OEO	%	Q	1	2
148	NLOULC..T	U.L.C. - TOTAL (TREND)	MEI	2005=100	Q	0	3
149	NLOULCC.T	U.L.C. - CONSTRUCTION (ISIC F) (TREND)	MEI	2005=100	Q	0	3
150	NLOULCM.T	U.L.C. - MANUFACTURING (ISIC D) (TREND)	MEI	2005=100	Q	0	3
151	NLOULCS.T	U.L.C. - MARKET SERVICES (ISIC GK) (TREND)	MEI	2005=100	Q	0	3
152	NLOULCF.T	U.L.C. - FINANCIAL & BUSINESS SERVICES (ISIC JK)(TR)	MEI	2005=100	Q	0	3
153	NLOCC011	REAL EFFECTIVE EXCHANGE RATES	MEI	2005=100	M	0	3
154	NLOSLI15G	TOTAL RETAIL TRADE (VOLUME)	MEI	2005=100	M	1	3
155	NLOPP017F	PPI MANUFACTURING	MEI	2005=100	M	2	4
156	NLOCP049F	CPI - HARMONISED	MEI	2005=100	M	2	4
157	NLOCP042F	CPI ALL ITEMS NON FOOD-NON ENERGY	MEI	2005=100	M	2	4
158	NLOCP019F	CPI FOOD	MEI	2005=100	M	2	4
159	NLOCP041F	CPI ENERGY	MEI	2005=100	M	2	4
160	NLOCP053F	CPI RENT INCL. IMPUTED RENT	MEI	2005=100	M	2	4
161	NLOCFISTR	INTEREST RATE - SHORT TERM	OEO	%	Q	0	2
162	NLOCFILTR	INTEREST RATE - LONG TERM	OEO	%	Q	0	2
163	NLOSP001F	SHARE PRICES ALL SHARES INDEX	MEI	2005=100	M	0	3
164	NLOLC007E	HOURLY WAGE RATE MANUFACTURING(DISC.)	MEI	2005=100	M	1	3
165	NLM1....A	M1	NCB	Mil€	M	2	4
166	NLM3....A	M3	NCB	Mil€	M	2	4

Spain

N	dsmnemonic	Variable	Source	Unit	F.	SA	T
167	ESOCFGDPD	GDP (REAL)	OEO	2000Mil€	Q	1	3
168	ESOCFPCND	PRIVATE CONSUMPTION EXPENDITURE (REAL)	OEO	2000Mil€	Q	1	3
169	ESOCFINVD	GFCF (REAL)	OEO	2000Mil€	Q	1	3
170	ESOCFEGSD	EXPORTS OF GOODS & SERVICES (REAL)	OEO	2000Mil€	Q	1	3
171	ESOCFIGSD	IMPORTS OF GOODS & SERVICES (REAL)	OEO	2000Mil€	Q	1	3
172	ESOCFDGDE	GDP - IPD	OEO	2000=100	Q	1	4
173	ESOCFDCNE	PRIVATE CONSUMPTION - IPD	OEO	2000=100	Q	1	4
174	ESOCFDINE	GROSS DOMESTIC FIXED CAPITAL FORMATION - IPD	OEO	2000=100	Q	1	4
175	ESOCFEPCE	EXPORTS OF GOODS & SERVICES - IPD	OEO	2000=100	Q	1	4
176	ESOCFIPCE	IMPORTS OF GOODS & SERVICES - IPD	OEO	2000=100	Q	1	4
177	ESOSLI12O	PASSENGER CAR REGISTRATIONS	MEI	Thous.	M	1	3
178	ESOBS076Q	BTS: MANUFACTURING, Capacity Utilization Judg.	MEI	%	Q	1	2
179	ESOCFEMPO	EMPLOYMENT	OEO	Thous.	Q	1	3
180	ESOCFUNRQ	UNEMPLOYMENT RATE	OEO	%	Q	1	2
181	ESOULC..T	UNIT LABOUR COSTS - TOTAL (TREND)	MEI	2005=100	Q	0	3
182	ESOULCC.T	U.L.C. - CONSTRUCTION (ISIC F) (TREND)	MEI	2005=100	Q	0	3
183	ESOULCM.T	U.L.C. - MANUFACTURING (ISIC D) (TREND)	MEI	2005=100	Q	0	3
184	ESOULCS.T	U.L.C. - MARKET SERVICES (ISIC GK) (TREND)	MEI	2005=100	Q	0	3
185	ESOULCF.T	U.L.C. - FINANCIAL & BUSINESS SERVICES (ISIC JK)(TR)	MEI	2005=100	Q	0	3
186	ESOCC011	REAL EFFECTIVE EXCHANGE RATES	MEI	2005=100	M	0	3
187	ESOPP017F	PPI Manufacturing - proxy PPI All Items	MEI	2005=100	M	2	4
188	ESOCP049F	CPI - HARMONISED	MEI	2005=100	M	2	4
189	ESOCP042F	CPI/NONFOOD/NONENERGY	MEI	2005=100	M	2	4
190	ESCPFDTBF	ES CPI - FOOD AND NON-ALCOHOLIC BEVERAGES NADJ	X	2006=100	M	2	3
191	ESOCP041F	CPI ENERGY	MEI	2005=100	M	2	4
192	ESOCP057F	CPI RENT	MEI	2005=100	M	2	4
193	ESOCFISTR	INTEREST RATE - SHORT TERM	OEO	%	Q	0	2
194	ESOCFILTR	INTEREST RATE - LONG TERM	OEO	%	Q	0	2
195	ESSHRPRCF	MADRID S.E - GENERAL INDEX	MEH	31/12/85=100	M	0	3
196	ESOLC007E	HOURLY EARNINGS: INDUSTRY EXCL. CONSTR. (DISC.)	MEI	2005=100	Q	1	3
197	ESM1....A	M1 - SPANISH CONTRIBUTION TO EURO M1 †	NCB	Mil€	M	2	4
198	ESM3....A	M3 - SPANISH CONTRIBUTION TO EURO M3 †	NCB	Mil€	M	2	4

† Series backdated by Eurostat "DS-070950 Former series for euro area countries on monetary aggregates and credit"

Other Countries

N	Country	dsmnemonic	Variable	Source	Unit	Freq	SA	T
199		FNOCFGDPD	GDP (REAL)	OEO	2000Mil€	Q	1	3
200	Finland	FNOCP049F	CPI - HARMONIZED	MEI	2005=100	M	2	4
201		FNOCFISTR	INTEREST RATE - SHORT TERM	OEO	Percentage	Q	0	2
202		FNOCFILTR	INTEREST RATE - LONG TERM	OEO	Percentage	Q	0	2
203		GROCFGDPD	GDP (REAL)	OEO	1995Mil€	Q	1	3
204	Greece	GROCP049F	CPI - HARMONIZED	MEI	2005=100	M	2	4
205		GROCFISTR	INTEREST RATE - SHORT TERM	OEO	Percentage	Q	0	2
206		IROCFGDPD	GDP (REAL)	OEO	2004Mil€	Q	1	3
207	Ireland	IROCP049F	CPI - HARMONIZED	MEI	2005=100	M	2	2
208		IRI60B..	MONEY MARKET RATE	IFS	Percentage	M	0	2
209		IROCFILTR	INTEREST RATE - LONG TERM	OEO	Percentage	Q	0	2
210	Luxembourg	LXOCFGDPD	GDP (REAL)	OEO	2000Mil€	Q	1	3
211		LXOCP049F	CPI - HARMONIZED	MEI	2005=100	M	2	4
212		PTOCFGDPD	GDP (REAL)	OEO	2000Mil€	Q	1	3
213	Portugal	PTOCP049F	CPI - HARMONIZED	MEI	2005=100	M	2	4
214		PTOCFISTR	INTEREST RATE - SHORT TERM	OEO	Percentage	Q	0	2
215		PTOCFILTR	INTEREST RATE - LONG TERM	OEO	Percentage	Q	0	2
216		UKOCFGDPD	GDP (REAL)	OEO	2003Mil.£	Q	1	3
217	United	UKOCP049F	CPI - HARMONIZED	MEI	2005=100	M	2	4
218	Kingdom	UKOCFISTR	INTEREST RATE - SHORT TERM	OEO	Percentage	Q	0	2
219		UKOCFILTR	INTEREST RATE - LONG TERM	OEO	Percentage	Q	0	2
220		JPOCFGDPD	GDP (REAL)	OEO	2000Mil¥	Q	1	3
221	Japan	JPCPIGLAF	CPI: GENERAL	MIAC	2005=100	M	2	4
222		JPOCFISTR	INTEREST RATE - SHORT TERM	OEO	Percentage	Q	0	2
223		JPOCFILTR	INTEREST RATE - LONG TERM	OEO	Percentage	Q	0	2
224		USOCFGDPD	GDP (REAL)	OEO	2000Mil$	Q	1	3
225	United	USOCP009F	CPI ALL ITEMS	MEI	2005=100	M	2	4
226	States	USOCFISTR	INTEREST RATE - SHORT TERM	OEO	Percentage	Q	0	2
227		USOCFILTR	INTEREST RATE - LONG TERM	OEO	Percentage	Q	0	2
228		EAESNGDPD	GDP †	EUR	Bil€2000chd	Q	1	3
229		EMCP....F	CPI - HARMONISED‡	EUR	2005=100	M	2	4
230	Euro	EMESEFI3R	3-MONTH INTEREST RATES (AVERAGE) †	EUR	Percentage	M	0	2
231	Area	EMESEFIGR	LONG TERM GOVERNMENT BOND YIELDS †	EUR	Percentage	M	0	2
232		EKEBLBCSE	UNIT LABOUR COSTS - TOTAL ECONOMY †	ECB	2000=100	Q	1	3
233		EMECBM1.A	MONEY SUPPLY: M1 (EP)	ECB	Bil€	M	2	4
234		EMECBM3.A	MONEY SUPPLY: M3 (EP)	ECB	Bil€	M	2	4
235		EMECBEXGR	REAL EFFECTIVE EXCHANGE RATE †	ECB	1990=100	Q	0	3
236	World	USESXECU	US DOLLAR TO ECU (MEAN)	EUR	$/€	M	0	3
237		UKI76AAZA	MARKET PRICE - UK BRENT	IFS	$	M	0	3

† Series backdated by using the AWM database data
‡ DS calculated before 1990

List of Abbreviations

Source		Transformations		Seasonally Adjustement	
NCB -	National Central Bank	1	none	0	Not Seasonally Adjusted
MEI	OECD Main Economic Indicators	2	Δ	1	Seasonally Adjusted
OEO	OECD Economic Outlook	3	Δ log	2	SA with dummy variables regression
ECB	European Central Bank	4	$\Delta\Delta$ log		
IFS	IMF International Financial Statistics	5	log		
EUR	Eurostat				
MEH	Ministerio de Economia y Hacienda				
MIAC	Ministry of Internal Affairs and Communications				

3 Determining the Number Factors

Table 1: *Determining the Number of Static Factors*

(a) Bai and Ng (2002)

r	PC_1	PC_2	PC_3	μ_i^x
1	0.9188	0.9206	0.9134	9.48
2	0.8728	0.8765	0.8621	6.95
3	0.8342	0.8398	0.8181	6.21
4	0.8098	0.8173	0.7884	4.77
5	0.7978	0.8071	0.7710	3.52
6	0.7876	0.7987	0.7554	3.34
7	0.7815	0.7945	0.7439	2.92
8	0.7778	0.7927	0.7349	2.68
9	**0.7750**	**0.7918**	0.7268	2.58
10	0.7758	0.7945	0.7222	2.23
11	0.7773	0.7978	0.7184	2.16
12	0.7791	0.8015	0.7148	2.12
13	0.7826	0.8068	0.7130	1.96
14	0.7870	0.8131	**0.7120**	1.86
15	0.7925	0.8204	0.7121	1.76

PC_i is the criteria of Bai and Ng (2002); bold figures indicate minimum. μ_r^x is the percentage of variance explained by r-th eigenvalue (in decreasing order) of the variance covariance matrix of x.

(b) Alessi et al. (2010)

r	PC_1	PC_2	PC_3
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	1
8	0	0	0
9	34	31	38
10	0	0	0
11	0	0	0
12	10	10	9
13	0	2	1
14	2	2	1
15	4	5	0

Each cell report the number of times, over 50 replication, that the PC_i criterion modified as in Alessi et al (2011) selects r static factors

Table 2: *Determining the Number of Common Shocks*

Hallin and Liška (2007)

Log-Criterion

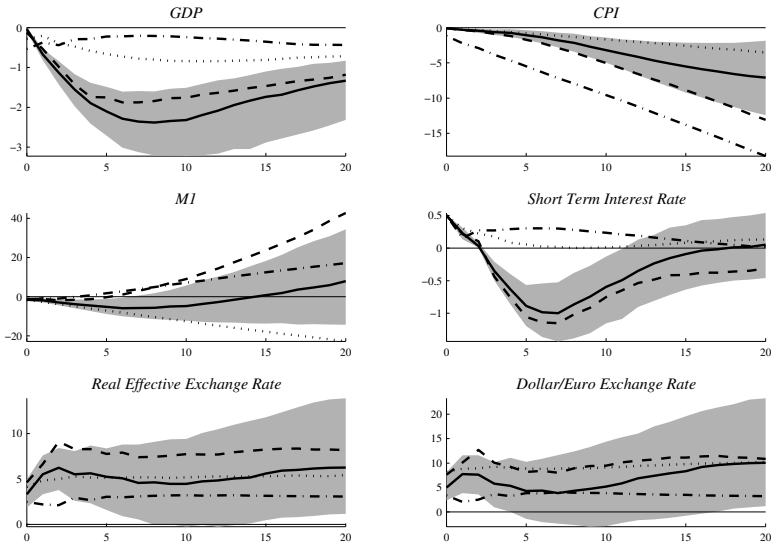
r	IC_1	IC_2	IC_3
1	0	0	0
2	16	20	16
3	28	28	32
4	0	0	0
5	0	0	1
6	6	2	1

Each cell report the number of times, over 50 replication, that the Hallin and Liska (2007) IC_i log criterion select q common shocks

4 Robustness Analysis

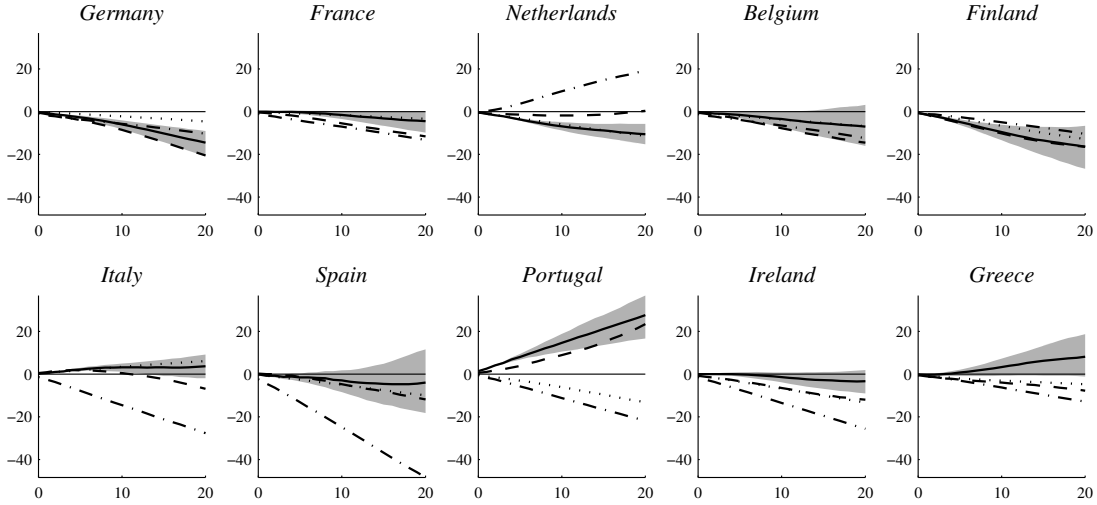
4.1 Impulse Response Functions for different number of static factors

Figure 1: *EA Aggregates*



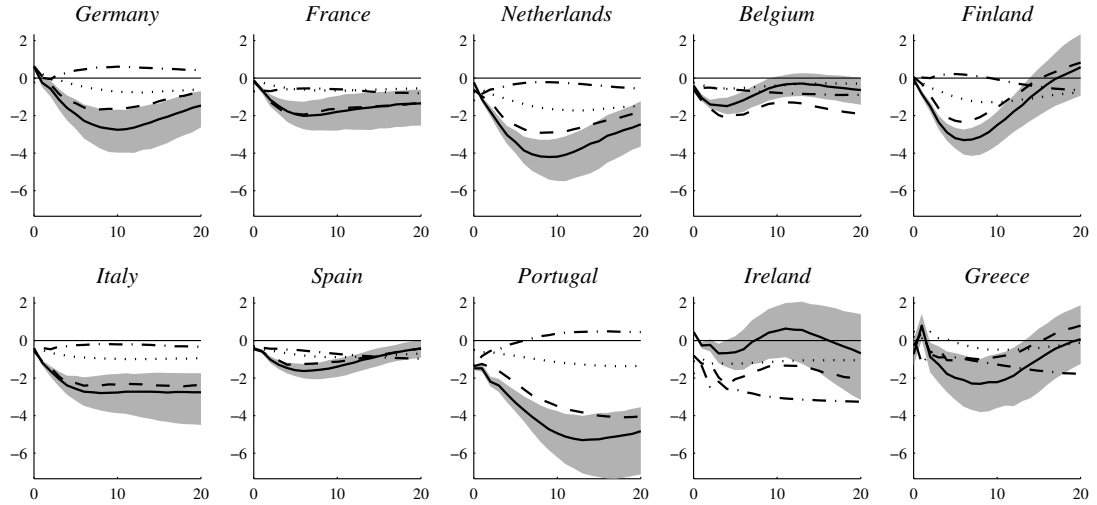
Solid lines with star markers are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band, of the benchmark specification. Solid lines with no marker are the median response obtained with $r = 13$. Dashed lines with no marker are the median response obtained with $r = 14$. Dashed-Dotted lines with no marker are the median response obtained with $r = 9$.

Figure 2: *Consumer Price Index*



Solid lines with star markers are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band, of the benchmark specification. Solid lines with no marker are the median response obtained with $r = 13$. Dashed lines with no marker are the median response obtained with $r = 14$. Dashed-Dotted lines with no marker are the median response obtained with $r = 9$.

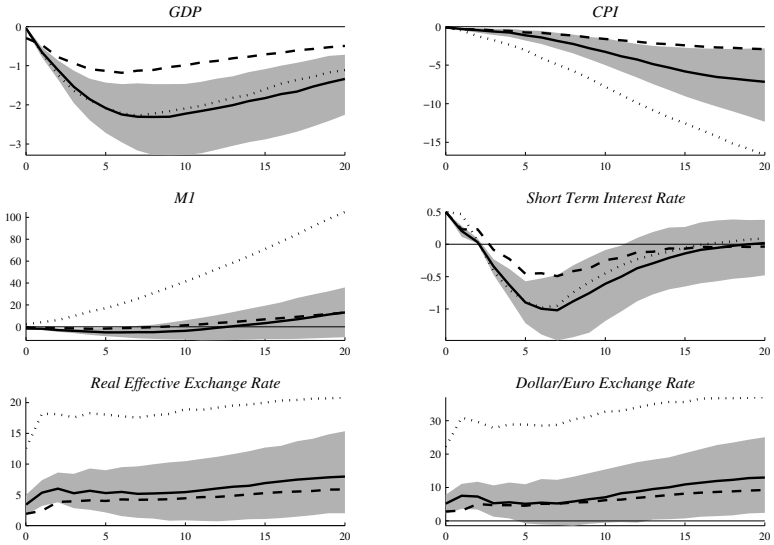
Figure 3: *Gross Domestic Product*



Solid lines with star markers are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band, of the benchmark specification. Solid lines with no marker are the median response obtained with $r = 13$. Dashed lines with no marker are the median response obtained with $r = 14$. Dashed-Dotted lines with no marker are the median response obtained with $r = 9$.

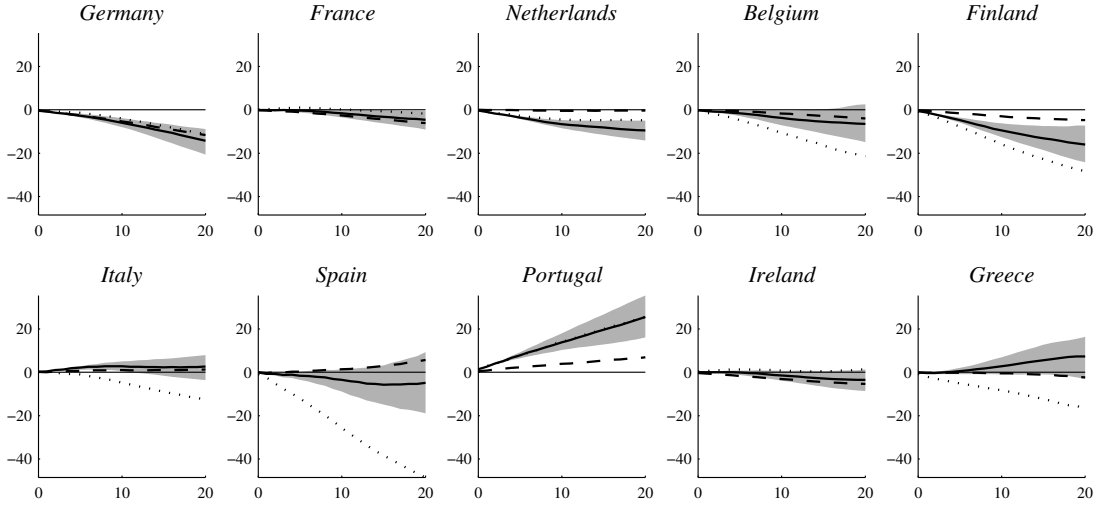
4.2 Impulse Response Functions for different number of common shocks

Figure 4: *EA Aggregates*



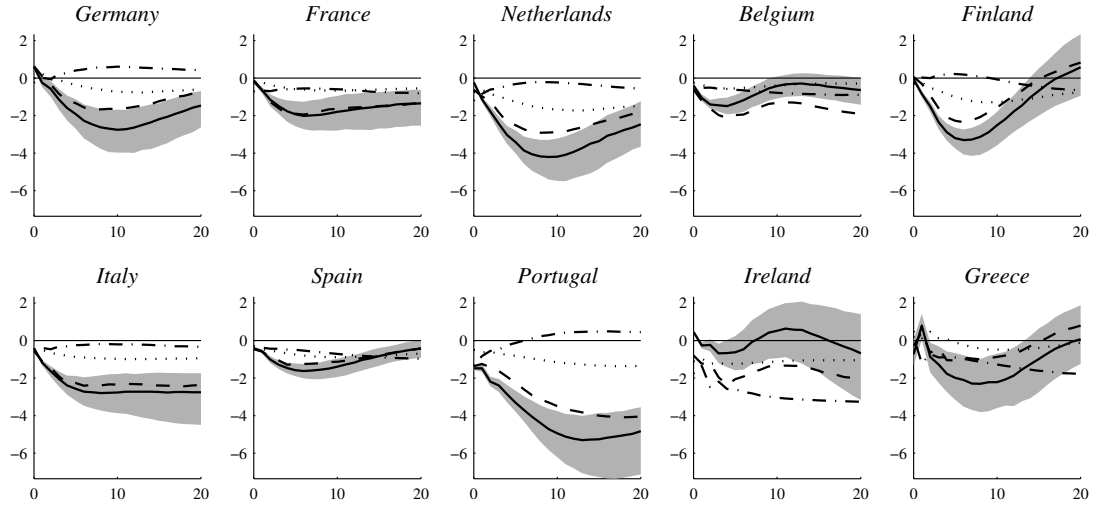
Solid lines with star markers are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band, of the benchmark specification. Solid lines with no marker are the median response obtained with $q = 3$. Dashed lines with no marker are the median response obtained with $q = 5$. Note that when estimating the model with $q = 3$ no sign restriction is imposed on M1.

Figure 5: *Consumer Price Index*



Solid lines with star markers are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band, of the benchmark specification. Solid lines with no marker are the median response obtained with $q = 3$. Dashed lines with no marker are the median response obtained with $q = 5$. Note that when estimating the model with $q = 3$ no sign restriction is imposed on M1.

Figure 6: *Gross Domestic Product*

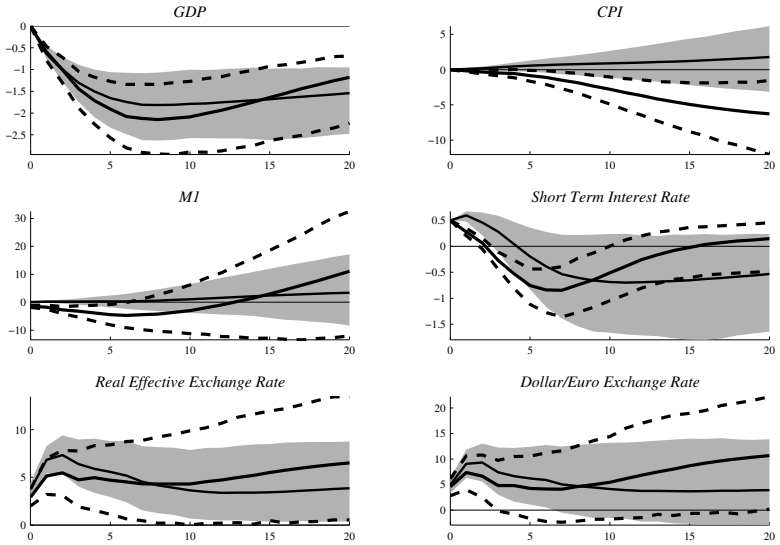


Solid lines with star markers are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band, of the benchmark specification. Solid lines with no marker are the median response obtained with $q = 3$. Dashed lines with no marker are the median response obtained with $q = 5$. Note that when estimating the model with $q = 3$ no sign restriction is imposed on M1.

5 Cholesky identification scheme

Following Forni and Gambetti (2010), let $\mathbf{B}^{(q)}(L)$ be the $q \times q$ sub-matrix of $\mathbf{B}(L)$ corresponding to the impulse responses of EA aggregate GDP, CPI, short term rate, and real effective exchange rate. The *Cholesky Identification scheme* consists in identifying the monetary policy shock by selecting the rotation matrix $\mathbf{R}$ such that $\mathbf{B}^{(q)}(0)$ is lower triangular. That is, we assume that output and prices do not react contemporaneously to monetary policy shocks. This is a standard recursive scheme, with the monetary policy shock being the third shock (see Forni and Gambetti, 2010, for a similar identification scheme using US data).

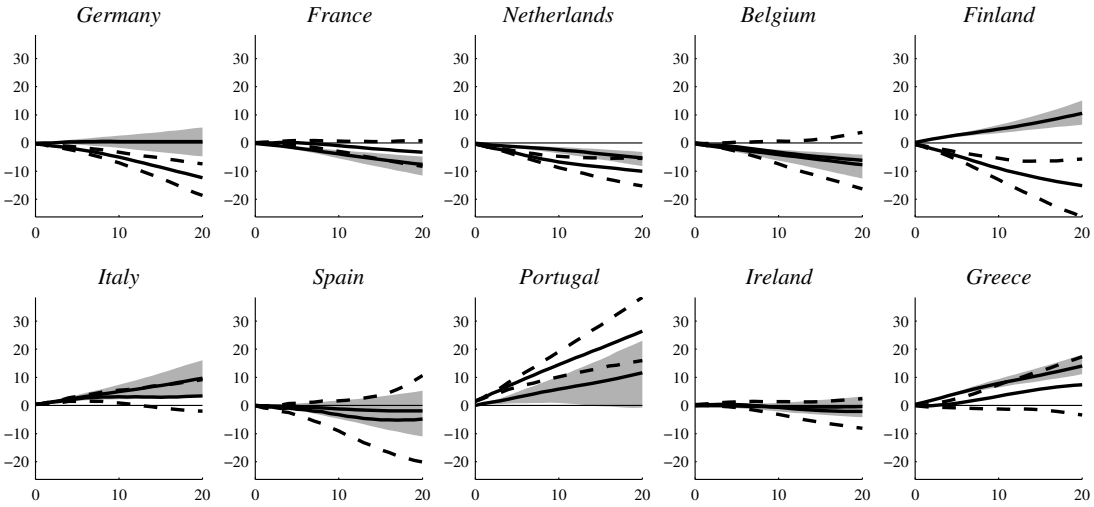
Figure 7: *Impulse Response Functions*
Cholesky Identification Scheme
EA Aggregates



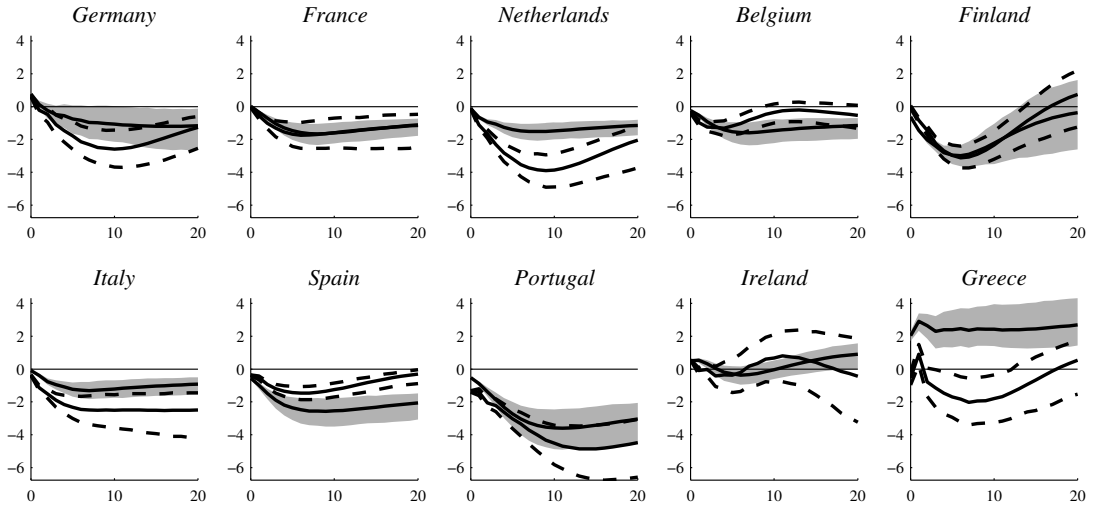
Solid line is the estimated impulse responses for the 1999:Q1-2007:Q4 (euro) subsample with 68% bootstrap confidence band (dashed). Shaded area is the 68% confidence band for the 1983:Q1-1998:Q4 (pre–euro) subsample.

Figure 8: *Impulse Response Functions*
CHOLESKY IDENTIFICATION SCHEME

(a) *Consumer Price Index*



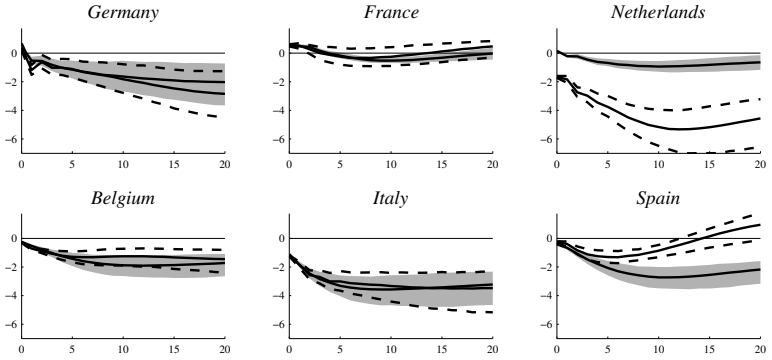
(b) *Gross Domestic Product*



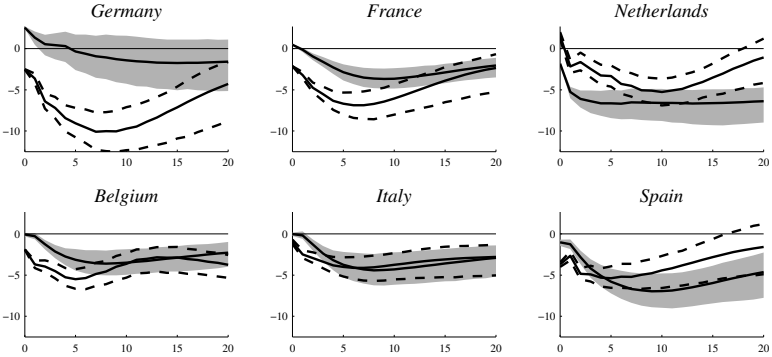
Solid line is the estimated impulse responses for the 1999:Q1-2007:Q4 (euro) subsample with 68% bootstrap confidence band (dashed). Shaded area is the 68% confidence band for the 1983:Q1-1998:Q4 (pre–euro) subsample.

Figure 9: *Impulse Response Functions*
CHOLESKY IDENTIFICATION SCHEME

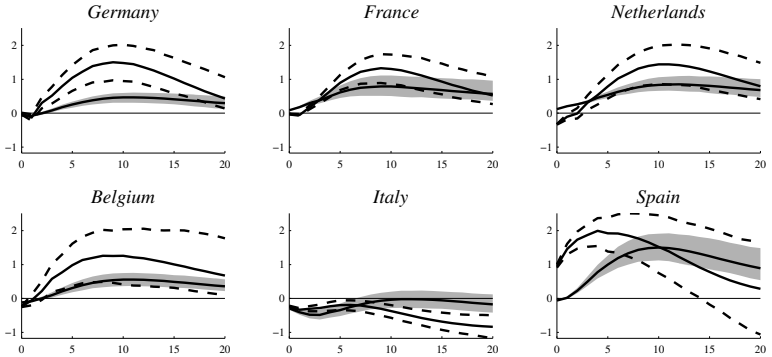
(a) *Consumption*



(b) *Investments*



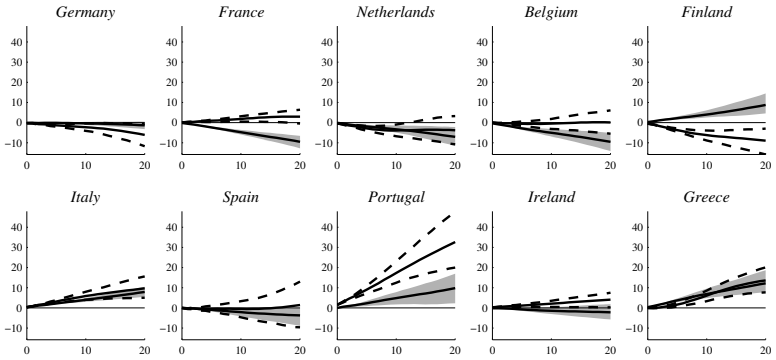
(c) *Unemplyment Rate*



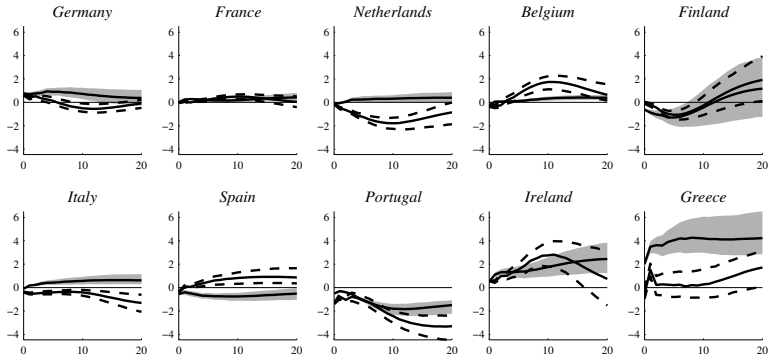
Solid line is the estimated impulse responses for the 1999:Q1-2007:Q4 (euro) subsample with 68% bootstrap confidence band (dashed). Shaded area is the 68% confidence band for the 1983:Q1-1998:Q4 (pre–euro) subsample.

Figure 10: *Quantifying Asymmetries*
CHOLESKY IDENTIFICATION SCHEME

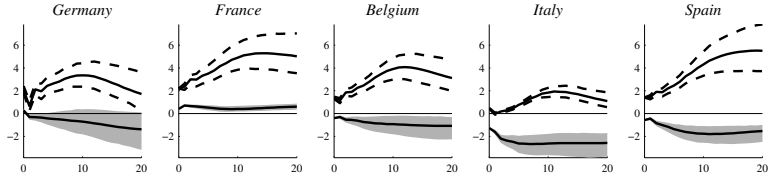
(a) *Consumer Price Index*



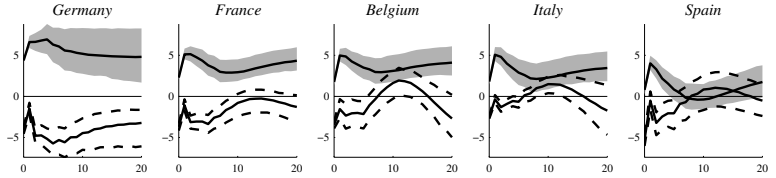
(b) *Gross Domestic Product*



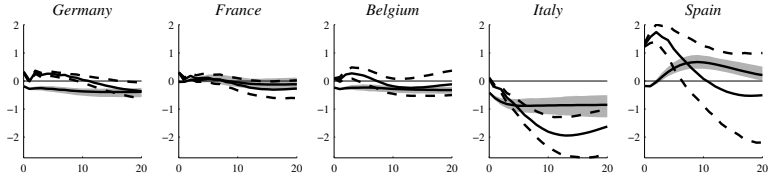
(c) *Consumption*



(d) *Investments*



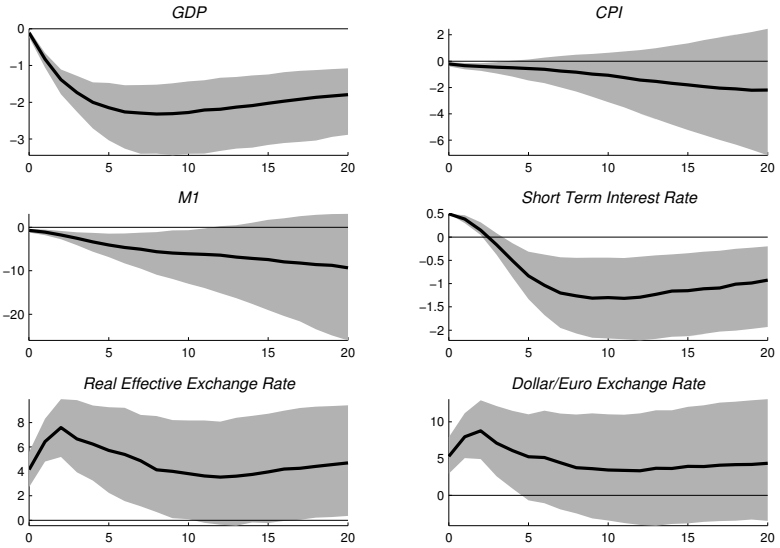
(e) *Unemplyment Rate*



In each plot, the grey/black straight line is the median difference between the response of a given country and the response of a benchmark country, while the shaded area/dashed lines is/are the 68% confidence bands estimated on the pre-euro/euro sample. If at horizon h the zero is contained within the confidence bands, it means that the impulse response of a given country and that of a benchmark country are not statistically different at horizon h. In panels (a) and (b) the benchmark country is the EA, while in panels (c), (d), and (e) the benchmark country is Germany,

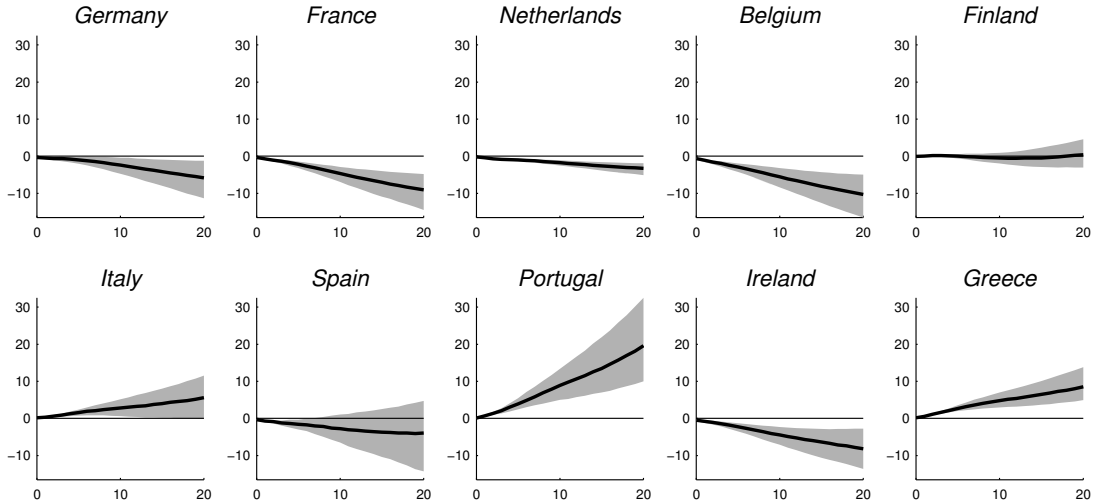
6 Impulse Response Functions on the Full Sample

Figure 11: *EA Aggregates*
Full Sample



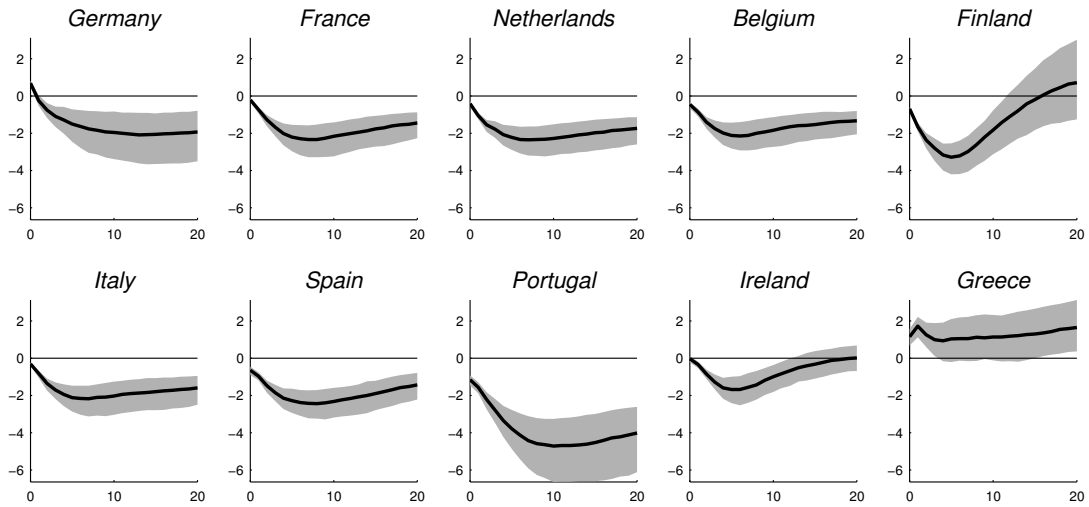
Solid lines are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band

Figure 12: *Consumer Price Index*
Full Sample



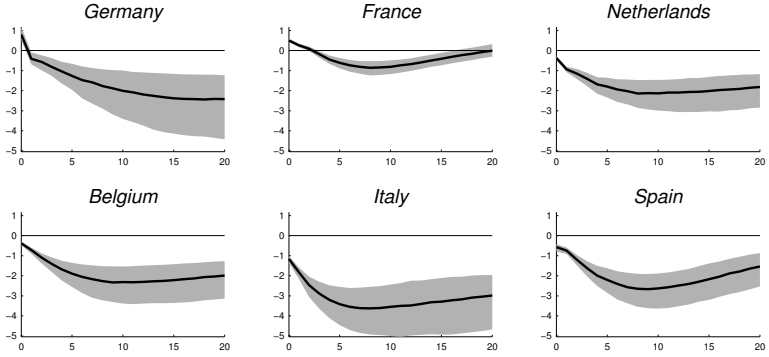
Solid lines are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band

Figure 13: *Gross Domestic Product*
Full Sample



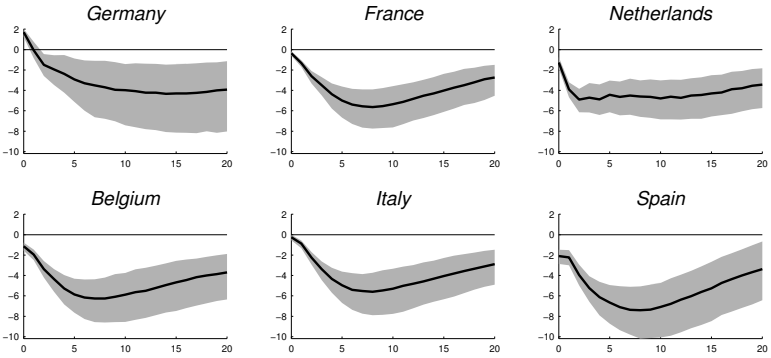
Solid lines are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band

Figure 14: *Consumption*
Full Sample



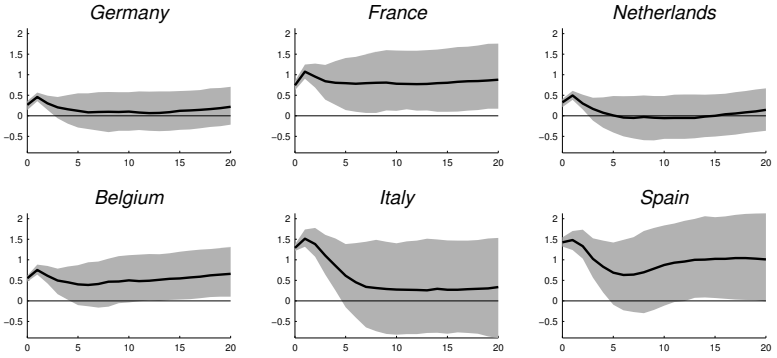
Solid lines are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band

Figure 15: *Investments*
Full Sample



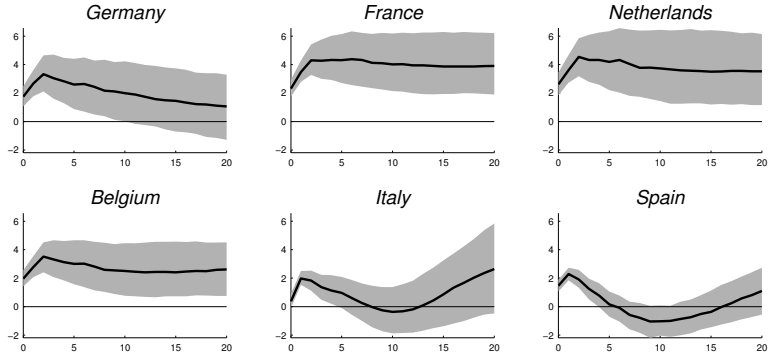
Solid lines are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band

Figure 16: *Long Term Rates*
Full Sample



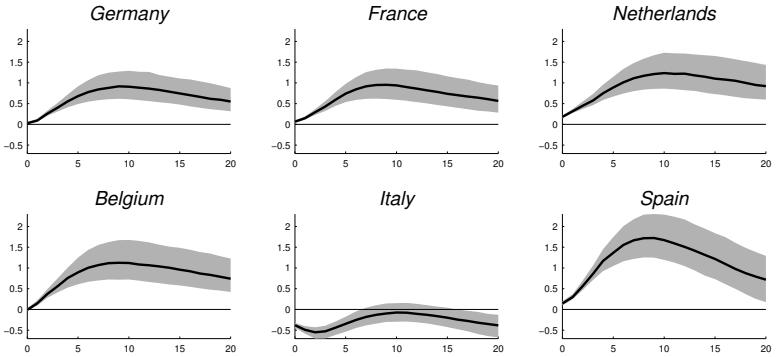
Solid lines are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band

Figure 17: *Real Effective Exchange Rate*
Full Sample



Solid lines are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band

Figure 18: *Unemployment Rate*
Full Sample

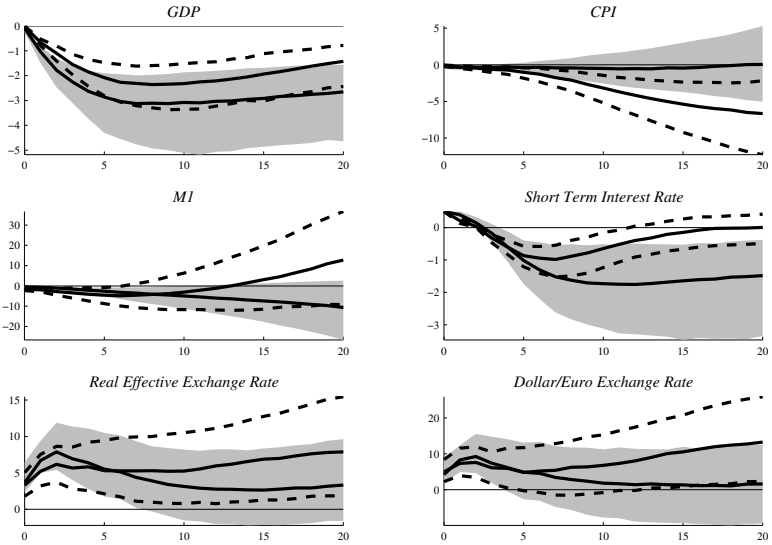


Solid lines are the median impulse responses, while the shaded areas lines are the 68% bootstrap confidence band

7 Impulse Response Functions for different Structural Breaks

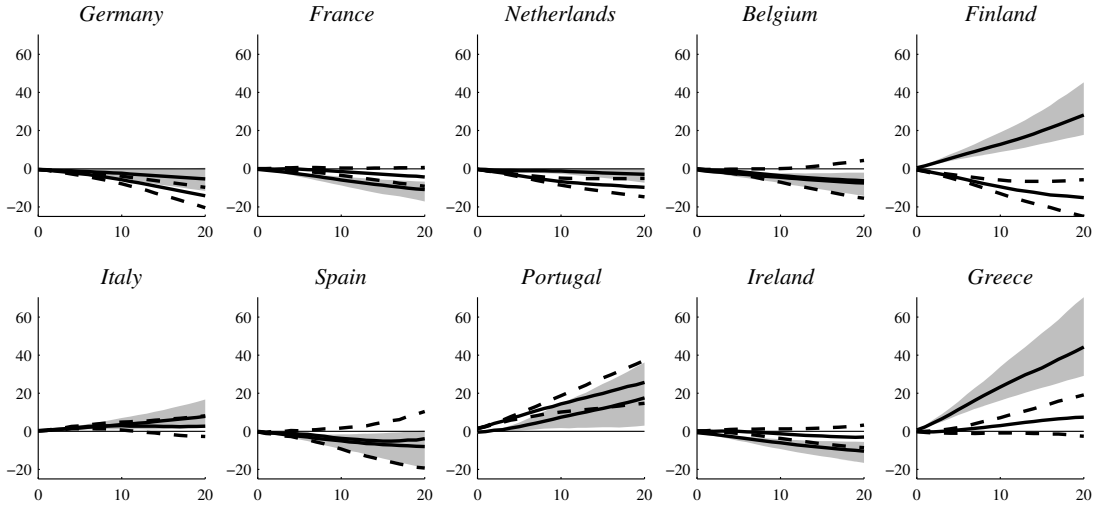
Since Weber et al. (2011) find that the transmission mechanism of monetary policy was similar before 1996 and after 1999 but different during the transition period 1996-1998, as a robustness check in this Section we show results obtained by estimating the model on the subsample 1983-1996 rather than 1983-1998.

Figure 19: *EA Aggregates*
1999:Q1-2007:Q4 *vs.* 1983:Q1-1995:Q4



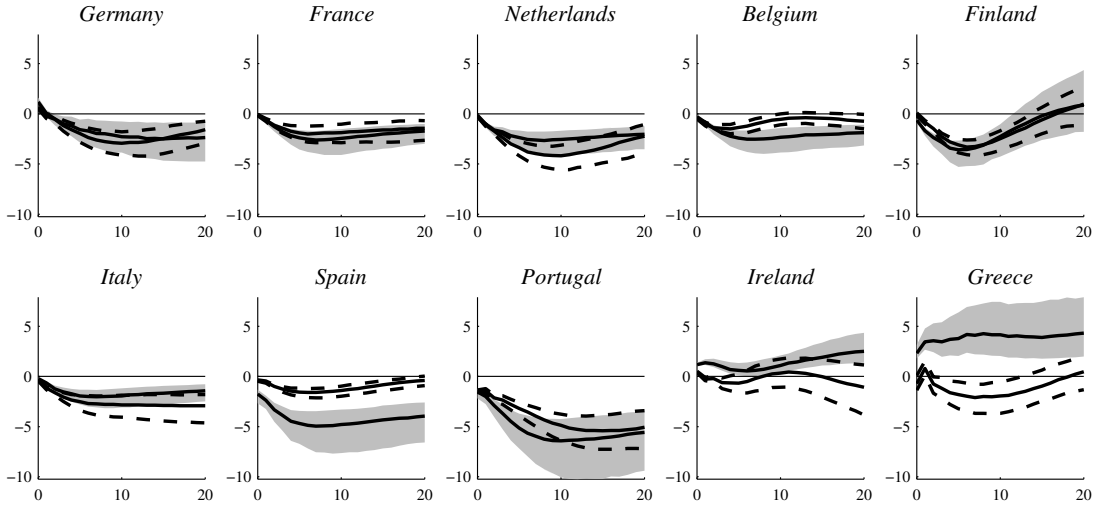
Solid line is the estimated impulse responses for the 1999:Q1-2007:Q4 (euro) subsample with 68% bootstrap confidence band (dashed). Shaded area is the 68% confidence band for the 1983:Q1-1995:Q4 subsample.

Figure 20: *Consumer Price Index*
1999:Q1-2007:Q4 *vs.* 1983:Q1-1995:Q4



Solid line is the estimated impulse responses for the 1999:Q1-2007:Q4 (euro) subsample with 68% bootstrap confidence band (dashed). Shaded area is the 68% confidence band for the 1983:Q1-1995:Q4 subsample.

Figure 21: *Gross Domestic Product*
1999:Q1-2007:Q4 *vs.* 1983:Q1-1995:Q4

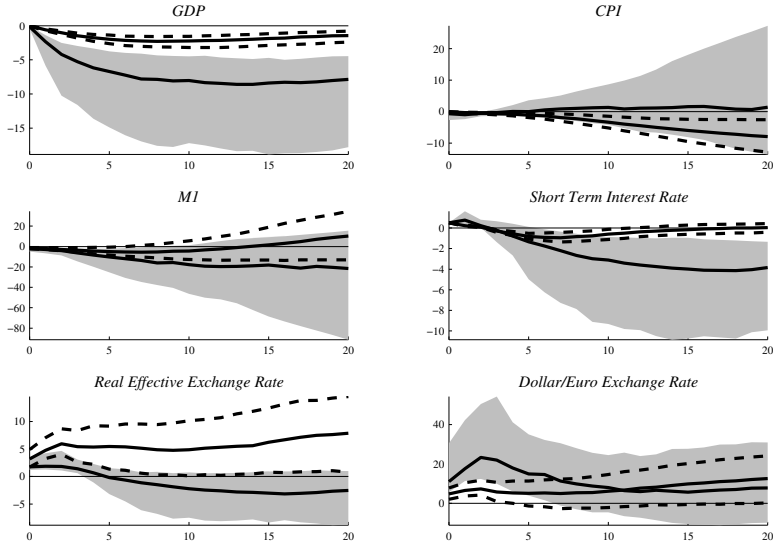


Solid line is the estimated impulse responses for the 1999:Q1-2007:Q4 (euro) subsample with 68% bootstrap confidence band (dashed). Shaded area is the 68% confidence band for the 1983:Q1-1995:Q4 subsample.

8 Impulse Response Functions: Germany Identification Scheme

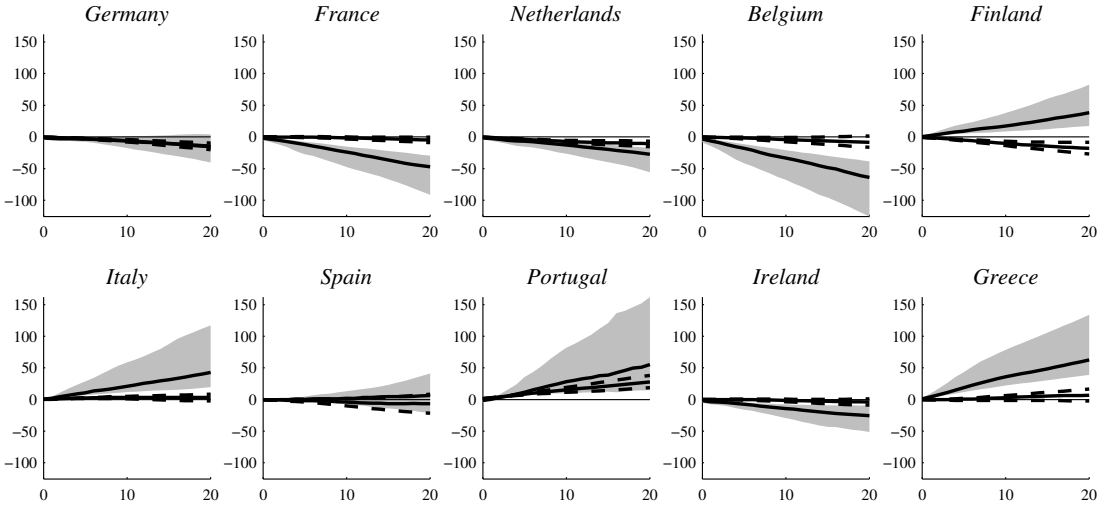
It may be argued that, since before 1999 there was no common monetary policy, the relevant comparison would be the transmission of Euro Area common monetary policy after 1999, with the transmission of German monetary policy to other Euro Area countries (Sala, 2003). Hence, as a robustness check this Section reports results obtained by imposing in the pre–1999 sample the identifying restrictions on the German short term rate.

Figure 22: *EA Aggregates*
Germany Identification



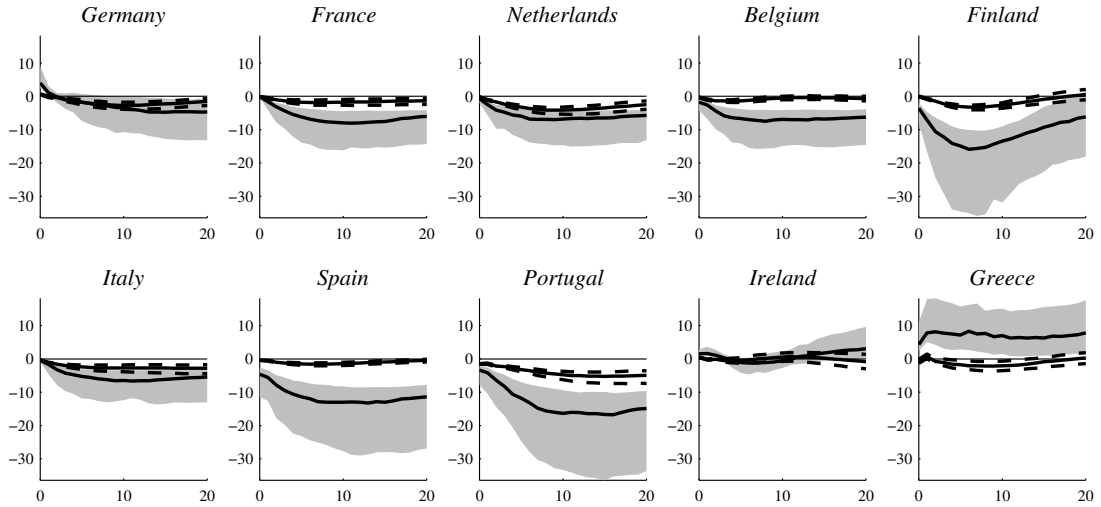
Solid line is the estimated impulse responses for the 1999:Q1-2007:Q4 (euro) subsample with 68% bootstrap confidence band (dashed). Shaded area is the 68% confidence band for the 1983:Q1-1998:Q4 (pre–euro) subsample when sign restrictions are imposed on the German short–term rate rather than on the Euro Area short–term rate. Note that the shaded area in the *Short Term Interest Rate Plot* refers to the German rate, not to the EA rate.

Figure 23: *Consumer Price Index*
Germany Identification



Solid line is the estimated impulse responses for the 1999:Q1-2007:Q4 (euro) subsample with 68% bootstrap confidence band (dashed). Shaded area is the 68% confidence band for the 1983:Q1-1998:Q4 (pre–euro) subsample when sign restrictions are imposed on the German short–term rate rather than on the Euro Area short–term rate.

Figure 24: *Gross Domestic Product*
Germany Identification



Solid line is the estimated impulse responses for the 1999:Q1-2007:Q4 (euro) subsample with 68% bootstrap confidence band (dashed). Shaded area is the 68% confidence band for the 1983:Q1-1998:Q4 (pre–euro) subsample when sign restrictions are imposed on the German short–term rate rather than on the Euro Area short–term rate.

9 Monetary Policy Shocks in the Euro Area

In our benchmark identification scheme we estimate a strong impact of monetary policy shocks on both GDP and CPI. However, our estimates are not far from those usually found by the literature. In Tables 3 and 4 below, we provide such a comparison for GDP and CPI for the Euro Area. These Tables summarize for each of the papers considered, the response to a monetary policy shock of the interest rate (on impact) and of GDP and CPI (maximum). In Table 2, related to factor model literature, we also specify which is the variable used in the estimation and which is the variable considered by the authors when displaying impulse responses. Given the transformations used and the identification strategy adopted, Sala (2003) and Eickmeier (2009) can be considered the works closest to ours from a methodological point of view. Indeed, we notice that these authors obtain magnitudes comparable to ours. Among the VAR literature similar magnitudes are obtained by Monticelli and Tristani (1999).

The reason for the large magnitudes in the response of prices is due to the heavy transformations choice. In particular, since we model CPI as an I(2) process, we obtain kind of explosive dynamics due to the need of cumulating twice the estimated IRF. However, if the IRF are converted in year-on-year growth rates, it is possible to see that the impact is still strong, but realistic (see Figure 25 below).

Table 3: *The Effect of Monetary Policy Shocks in the Euro Area - VAR models*

Reference	Sample	Identification	Shock	EA Variable	Max	Ratio
Monticelli and Tristani (1999)	78Q1-97Q4	SLR	0.1	Lev. GDP	0.5	5.0
				1^{st} Diff GDP defl.	0.4	4.0
Peersman and Smets (2003)	80Q1-98Q4	Cholesky	0.3	Lev. GDP	0.2	0.5
				Lev. GDP defl.	0.8	2.7
Peersman (2004)	80Q1-98Q4	Cholesky	0.3	Lev. GDP	0.2	0.7
				Lev. CPI	0.1	0.3
Cecioni and Neri (2011)	99Q1-09Q3	Sign	0.5	Lev. GDP	1.0	2.0
				Lev. GDP defl.	0.7	1.3
Weber et al. (2011)	96Q1-06Q4	Cholesky	0.17	Lev. GDP	0.2	0.9
				Lev. GDP defl.	0.1	0.5

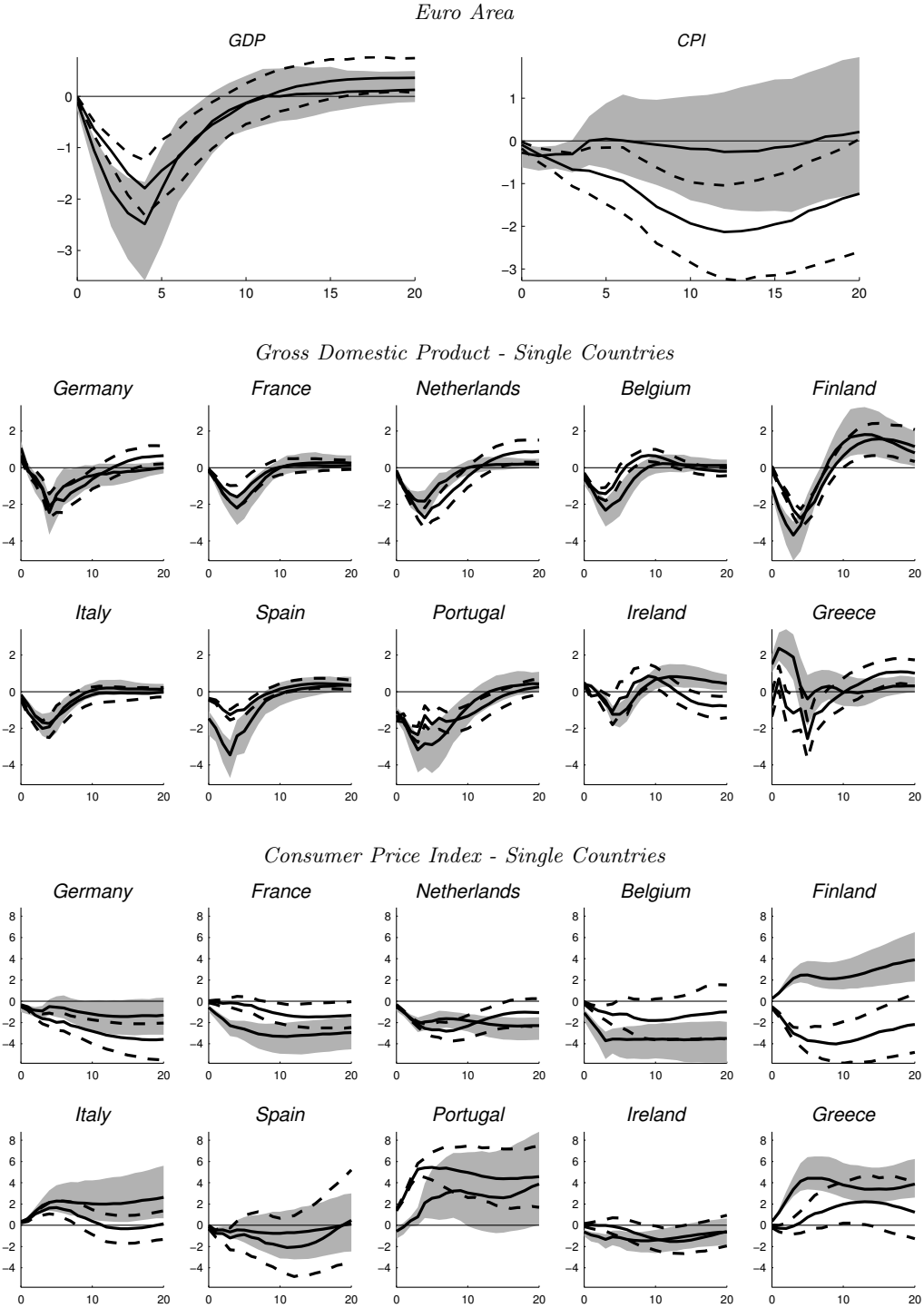
This Table reports the effects on GDP and CPI in the Euro Area estimated by the VAR literature. Column "Identification" reports the technique used to identify the monetary policy shocks: SLR = Short-Run and Long-Run Restrictions; Cholesky = Recursive Scheme; Sign = Sign restrictions. Column "Shock" reports the impact of the monetary policy shock on the interest rate. The column "EA Variable" reports the variable used in the estimation. Column "Max" reports the maximum effect of the monetary policy shock on the considered variable. Column "Ratio" is "Max"/"Shock"
N.B.: Magnitudes are inferred from the graphs of the printed version of the paper cited, are in percentage points and annualized when considering growth rates.

Table 4: *The Effect of Monetary Policy Shocks in the Euro Area - Factor models*

Reference	Sample	Identification	Shock	EA Variable		Max	Ratio
				estimation	display		
This paper	99Q1-07Q4	Sign	0.5	1^{st} Diff. GDP	Lev. GDP	2.0	4.0
					1^{st} Diff. GDP	1.5	3.0
				2^{nd} Diff. CPI	Lev. CPI	5.0	10.0
					1^{st} Diff. CPI	2.0	4.0
Sala (2003)	85M1-98M12	MDE	0.075	1^{st} Diff. IP	Lev. IPI	0.4	5.3
				2^{nd} Diff. CPI	1^{st} Diff. CPI	0.7	9.6
Boivin et al. (2009)	87Q1-07Q3	Cholesky	1	1^{st} Diff. GDP	1^{st} Diff. GDP	1	1
				1^{st} Diff. CPI	1^{st} Diff. CPI	0.1	0.1
Eickmeier (2009)	81Q1-03Q4	Sign	0.05	1^{st} Diff. GDP	Lev. GDP	0.1	2
				1^{st} Diff. CPI	1^{st} Diff. CPI	0.8	16
McCallum and Smets (2009)	87Q1-05Q4	Cholesky	0.25	1^{st} Diff. GDP	Lev. GDP	0.2	0.8
					1^{st} Diff. GDP	0.4	1.6
				1^{st} Diff. CPI	Levels CPI	0.1	0.4
					1^{st} Diff. CPI	0.04	0.16

This Table reports the effects on GDP and CPI in the Euro Area estimated by the Factor models' literature. Column "Identification" reports the technique used to identify the monetary policy shocks: SLR = Short run and Long run Restrictions; Cholesky = Recursive Scheme; Sign = Sign restrictions. Column "Shock" reports the impact of the monetary policy shock on the interest rate. The column "estimation" reports the variable used in the estimation while "display" indicates the variable for which the impulse response is shown. Column "Max" reports the maximum effect of the monetary policy shock on the considered variable. Column "Ratio" is "Max"/"Shock" N.B.: Magnitudes are inferred from the graphs of the printed version of the paper cited, are in percentage points and annualized when considering growth rates.

Figure 25: *Impulse Responses to a Monetary Policy Shock*
Year on Year Growth Rates



The graphs report impulse response function to a monetary policy shock for YoY GDP growth rate and YoY CPI growth rate for the Euro Area and single countries.

10 Investment in Germany

In the main text we justify the reaction of Germany Investments after 1999 by referring to Knetsch (2010), who shows that the housing market was characterized by a post-reunification boom-bust cycle in residential investment. In this Section, we expand on that. In Table 5 we report growth rate of investment in Germany from 1992 to 2008, from which we can see the large swings experienced by the German housing market:for example, Dwellings construction expanded massively between 1991 and 1995, while construction investments strongly declined during the period 2000-2005.

Table 5: *Growth Rate of Investments: Germany*

	CO	DW	EQ	MA	NR	TR
1992	10.41	10.06	-3.56	-0.76	10.77	-10.57
1993	1.94	4.47	-14.87	-11.90	-0.62	-23.13
1994	7.12	11.75	-1.04	-1.69	2.19	1.03
1995	-1.75	0.37	2.27	2.09	-4.22	2.83
1996	-2.72	-0.15	2.81	2.20	-5.86	4.67
1997	-1.46	0.40	5.17	2.89	-3.87	12.01
1998	-0.88	0.35	11.45	12.81	-2.53	7.66
1999	1.50	1.77	8.65	10.68	1.13	2.77
2000	-2.41	-2.48	10.68	9.65	-2.31	13.91
2001	-4.60	-6.07	-3.67	0.06	-2.55	-14.85
2002	-5.82	-5.83	-7.51	-7.40	-5.81	-7.92
2003	-1.63	-0.96	0.89	-3.52	-2.54	16.52
2004	-3.86	-2.93	4.34	2.49	-5.13	9.75
2005	-3.02	-3.80	5.40	5.26	-1.92	5.77
2006	4.86	5.42	11.63	10.76	4.10	13.98
2007	-0.50	-1.82	11.09	13.34	1.33	5.12
2008	1.21	-0.93	3.97	6.13	4.10	-2.21

This Table shows annual growth rate of "Gross fixed capital formation at 2000 prices". CO = construction; DW = dwellings; EQ = equipment; MA = metal products and machinery; NR = non-residential construction and civil engineering; TR = transport equipment.

Source: AMECO.

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