Macro News and Bond Yield Spreads in the Euro Area

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Abstract

This paper analyses the effects of newspaper coverage of macro news on the spread between the yield on the 10-year German Bund and on sovereign bonds in eight countries belonging to the euro area (Belgium, France, Greece, Ireland, Italy, the Netherlands, Portugal and Spain) using daily data for the period 1999-2014. The econometric analysis is based on the estimation of a VAR-GARCH model. The results can be summarised as follows. Negative news have significant positive effects on yield spreads in all PIIGS countries but Italy before September 2008; markets respond more to negative news, and their reaction has increased during the recent financial crisis. News volatility has a significant impact on yield spread volatility, the effects being more pronounced in the case of negative news and bigger in the most recent crisis period, especially in the PIIGS countries. Further, the conditional correlations between yield spreads and negative news are significant and positive, and their increase in absolute value during the financial crisis (especially in the PIIGS countries) indicates a higher sensitivity of yield spreads to negative releases.

Keywords: News, Yield Spreads, Volatility Spillovers, VAR-GARCH model

JEL Classification: C32, F36, G15.

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1 Introduction

The issue of how macroeconomic news a ect financial markets has become increasingly important in recent years. In particular, the European sovereign debt crisis that started in September 2009, when the Greek government revealed that the country's public deficit would be considerably higher than originally forecast, has generated a lot of interest in the linkages between news and bond yields. After the initial di culties encountered by Greece, the crisis quickly spread to other EMU economies, specifically Ireland, Italy, Portugal and Spain (a group of countries now collectively known as PIIGS), and both the European Financial Stabilisation Mechanism (EFSM) and the European Financial Stability Facility (EFSF) were created to help economies with huge fiscal imbalances and facing liquidity and solvency constraints.

Since interest rates are forward-looking, and under the E cient Market Hypothesis (EMH), only unanticipated news should a ect asset prices. In the case of a bond, the price equals the present value of all expected future cash flows from the asset discounted at an appropriate rate. According to the Fisher hypothesis, the corresponding yield can be decomposed into a real interest rate and an expected inflation component, both conditional on the available information set. A news release represents a change in the information set which can a ect the yield on (and therefore the price of) the bond. Various empirical studies have been carried out for the US bond markets. For instance, Gurkaynak et al. (2005) provide evidence that long-term interest rates respond to the unexpected component of macro news releases and monetary policy announcements; in their opinion, an explicit inflation target would therefore be useful to stabilize infl

is taken from the newsflash of Eurointelligence, an Internet-based service. The analysis is

logarithmic di erences of domestic bond yields. We consider news coverage of four macro economic data series, i.e. GDP, unemployment, retail sales and durable goods. The average number of stories about unemployment and GDP is very similar, and they account for the

the spreads before the 2008 crisis ($_{12} = 0$); ( ) Positive (Negative) news a ect the spreads after the 2008 crisis ($^{*}_{12} = 0$); ( )

were particularly sensitive to negative news. Summary (mean and variance) statistics for the conditional correlations, pre- and post- September 2008, are reported in Table 3. The means are positive for all eight countries pre-September 2008. Interestingly, in the second subsample conditional correlations have substantially higher mean values (with the exception of the Netherlands), especially in the case of the PIIGS countries, where they at least doubled.

3.3 Robustness Check

To check robustness (Birz and Lott, 2013) we also consider the di erence between negative and positive news indices. The causality-in-mean e ect of news is significant especially after September 2008, except for Belgium and the Nethe

analysis provides new evidence on the existence of causality linkages between news volatility and yield spread volatility; of particular interest is the finding that the latter have become even more responsive to the former during the recent financial crisis: the linkages between real sector news and financial markets have clearly become stronger in the euro area in the new financial environment (especially for the pe

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Table 1: Descriprive statistics. Daily spreads are the di erence between domestic 10 years bonds and the 10 years German Bund. News counts refer to domestic and international (within the Euroarea) media coverage. Please note that descriptive statistics refer to raw daily data (story counts). The sample size covers the period 04/1/1999-28/3/2014, for a total of 3808 observations.

	Pre 2008					Post 2008				
	Mean	S.D.	Skew.	Kur.	JB	Mean	S.D.	Skew.	Kur.	JB
10 yrs Bond Spreads vis a vis German Bond										
Belgium	0 17	0 14	1 03	4 21	580	0 99	0 55	1 50	5 13	784
France	0 08	0 07	1 25	5 39	1214	0 57	0 30	1 40	4 64	609
Greece	0 41	0 35	2 13	7 82	4204	10 89	9 08	1 34	4 28	511
Ireland	0 07	0 16	1 63	9 70	5624	3 53	2 06	0 81	2 72	157
Italy	0 27	0 15	3 01	16 94	2336	2 26	1 23	0 54	2 22	103
Nether.	0 09	0 08	1 33	7 71	2966	0 34	0 13	0 94	3 48	218
Portugal	0 21	0 15	0 91	4 69	623	4 79	3 31	0 54	2 27	98
Spain	0 13	0 14	1 03	4 21	582	2 41	1 36	0 34	2 31	54
	Mean	S.D.		Min	Max	Mean	S.D.		Min	Max
Positive News										
Belgium	0 06	0 43		0	9	0 41	3 91		0	102
France	0 38	0 81		0	9	1 27	5 14		0	104
Greece	0 02	0 04		0	2	1 07	5 74		0	91
Ireland	0 02	0 07		0	2	0 38	1 92		0	57
Italy	0 26	0 34		0	6	0 68	4 38		0	77
Nether.	0 06	0 31		0	5	0 47	3 20		0	74
Portugal	0 03	0 06		0	2	0 46	3 18		0	74
Spain	0 09	0 15		0	4	0 71	4 64		0	77
Negative News										
Belgium	0 08	0 39		0	7	0 26	2 73		0	98
France	0 28	1 26		0	18	1 49	3 83		0	101
Greece	0 01	0 25		0	5	1 42	4 26		0	106
Ireland	0 01	0 26		0	4	0 67	3 31		0	102
Italy	0 05	0 91		0	9	0 83	3 41		0	108
Nether.	0 05	0 45		0	8	0 15	1 03		0	25
Portugal	0 01	0 31		0	7	0 61	2 73		0	77
Spain	0 01	0 48		0	8	1 11	3 66		0	104

Table 2: Summary results for conditional mean and conditional variance equations

	Pre 2008			Post 2008		
	Negative	Positive	Neg-Pos	Negative	Positive	Neg-Pos
	Mean spillovers between News and Spread					
Belgium				x		
France	x	x	x	x		x
Greece	x		x	x		x
Ireland	x			x		x
Italy		x		x		x
Nether.		x		x		
Portugal	x	x		x		x
Spain	x			x		x
	Causality in Variance spillovers between News and Spread					
Belgium	x	x		x	x	
France		x	x		x	x
Greece	x	x	x	x	x	x
Ireland	x	x	x	x	x	x
Italy	x	x	x	x	x	x
Nether.	x	x	x	x	x	x
Portugal	x	x	x	x	x	x
Spain	x	x	x	x	x	x

Table 3: Conditional Correlations Summary. Conditional correlations between spread and negative (positive) news index are given by: $\rho_{12|\mu} = \rho_{12|\mu} \sqrt{\rho_{11|\mu}} \sqrt{\rho_{22|\mu}}$.

	Pre 2008		Post 2008	
	Mean	S.D.	Mean	S.D.
Bond Spreads and Negative News Index				
Belgium	0 0632	0 1605	0 1652	0 1956
France	0 0612	0 2512	0 1912	0 2723
Greece	0 0432	0 1235	0 0534	0 4732
Ireland	0 0415	0 2216	0 2365	0 1231
Italy	0 0542	0 1861	0 1954	0 3013
Netherlands	0 1601	0 1301	0 0398	0 1707
Portugal	0 0433	0 0922	0 2044	0 2272
Spain	0 1511	0 2632	0 2911	0 2354
Bond Spreads and (Negative - Positive) News Index				
Belgium	0 0012	0 1313	0 0476	0 1472
France	0 0001	0 2151	0 0353	0 2317
Greece	0 0501	0 0925	0 1212	0 1291
Ireland	0 0302	0 1041	0 1221	0 1283
Italy	0 0121	0 1773	0 1231	0 1851
Netherlands	0 1012	0 2659	0 1002	0 2032
Portugal	0 0121	0 1263	0 1713	0 1810
Spain	0 0122	0 1306	0 2542	0 2051

Table A1: Estimated VAR-GARCH(1,1) model for Belgium. The number of positive (negative) newspaper headlines index is defined as follows: positive (negative) news index = ln[e+domestic positive (negative) news + international positive (negative) news]. Standard errors (S.E.) are calculated using the quasi-maximum likelihood method of Bollerslev and Wooldridge (1992), which is robust to the distribution of the underlying residuals. The parameters not statistically significant at the 5% level are not reported. $LB_{s\pm^3¦¢¥(10)}$ and $LB^2_{s\pm^3¦¢¥(10)}$ are respectively the Ljung-Box test (1978) of significance of autocorrelations of ten lags in the standardized and standardized squared residuals. The parameter $_{12}$ measures the causality e ect of positive (negative) news on the yield spread whereas . $_{21}$ measures the causality- in-variance e ect of positive (negative) news. The e ect of the 2008 financial crisis on the yield spread is measured by $(\ _{12}+\ ^{*}_{12})$, whereas $(\ _{21}+\ ^{*}_{21})$ captures the e ects on spread volatilities. The covariance stationarity condition is satisfied by all the estimated models, all the eigenvalues of $_{11}\ \ _{11}+\ _{11}\ \ _{11}$ being less than one in modulus. Note that in the conditional variance equation the sign of the parameters cannot be determined.

	Negative		Positive		Negative - Positive	
	Coe .	S.E.	Coe .	S.E.	Coe .	S.E.
			Conditional Mean Equation			
$_1$	0 0462	0 0033	0 0571	0 0035	0 3141	0 0115
$_2$	1 0135	0 0025	1 0211	0 0054	0 0029	0 0019
$_{11}$	0 0178	0 0032	0 1213	0 0389	0 3374	0 1251
$_{12}$						
$^{*}_{12}$	0 5380	0 0114				
$_{21}$						
$_{11}$	0 0004	0 0002	0 0001	0 0001	0 0007	0 0004
			Conditional Variance Equation			
$_{11}$	0 0007	0 0004	0 0006	0 0002	0 0047	0 0022
$_{12}$	0 0149	0 0030	0 0186	0 0068	0 0162	0 0049
$_{22}$	0 0066	0 0015	0 0049	0 0178	0 0001	0 0001
$_{11}$	0 7698	0 0434	0 8907	0 0146	0 7211	0 1015
$_{21}$	0 0669	0 0201	0 0154	0 0055		
$^{*}_{21}$	0 0773	0 0272	0 0267	0 0109		
$_{22}$	0 9590	0 0063	0 9531	0 0095	0 9777	0 0095
$_{11}$	0 6780	0 0571	0 4770	0 0273	0 7111	0 1018
$_{21}$	0 0531	0 0274	0 0218	0 0080		
$^{*}_{21}$	0 0887	0 0412	0 0511	0 0229		
$_{22}$	0 2145	0 0253	0 2386	0 0332	0 1846	0 0411
LogLik		5486 8179		5246 7762		2086 4309
$s\pm^3¦¢¥[(10)$	3 112		2 137		1 143	
$^2_{s\pm^3¦¢¥[(10)}$	2 456		1 998		2 224	
$n¦¸´[(10)$	4 442		3 142		3 643	
$^2_{n¦¸´[(10)}$	3 996		2 167		5 443	

Figure 1: Domestic 10 years Bond Spread vs German Bond.

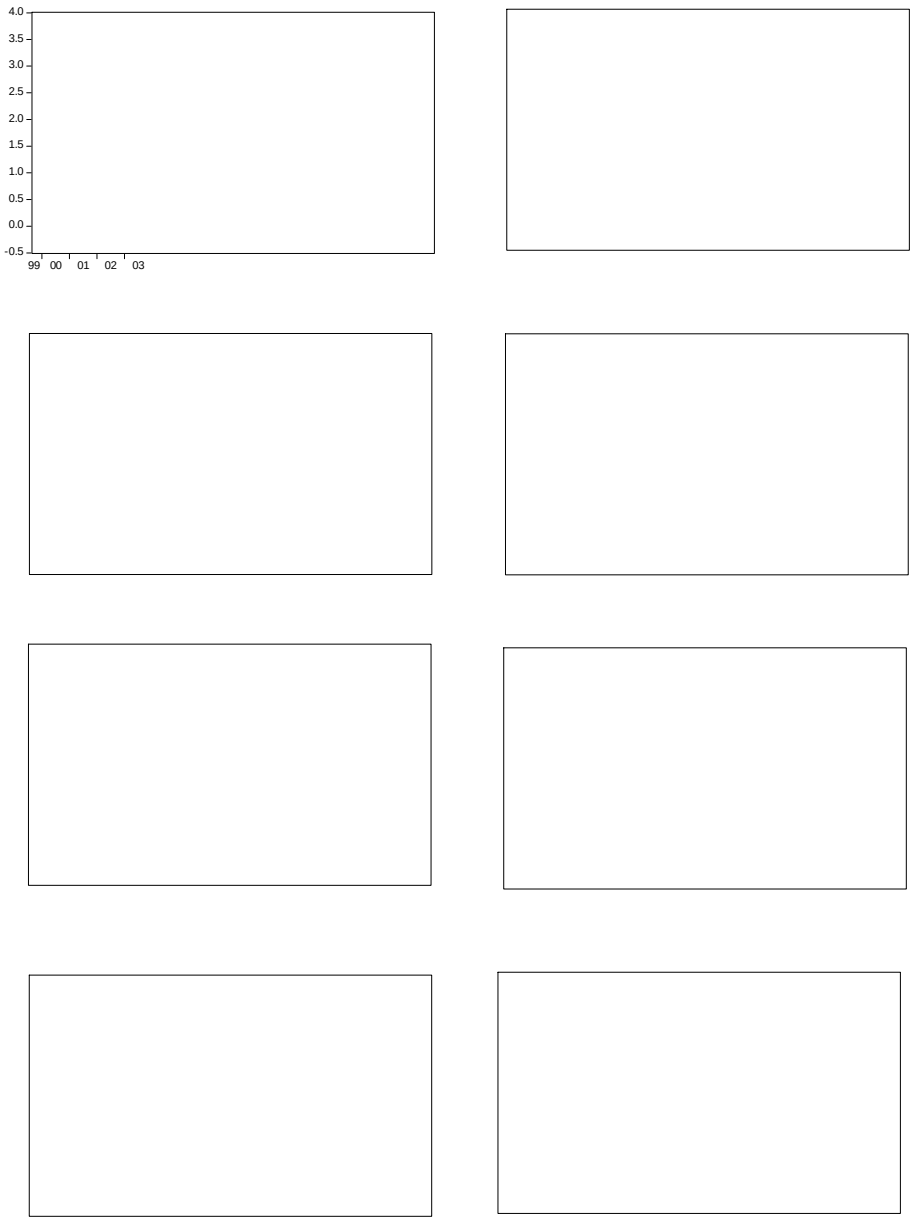

Figure 2: Difference between Negative and Positive News Index. The number of positive (negative) newspaper headlines index is defined as follows: positive (negative) news index = ln[e+domestic positive (negative) news + international positive (negative) news].

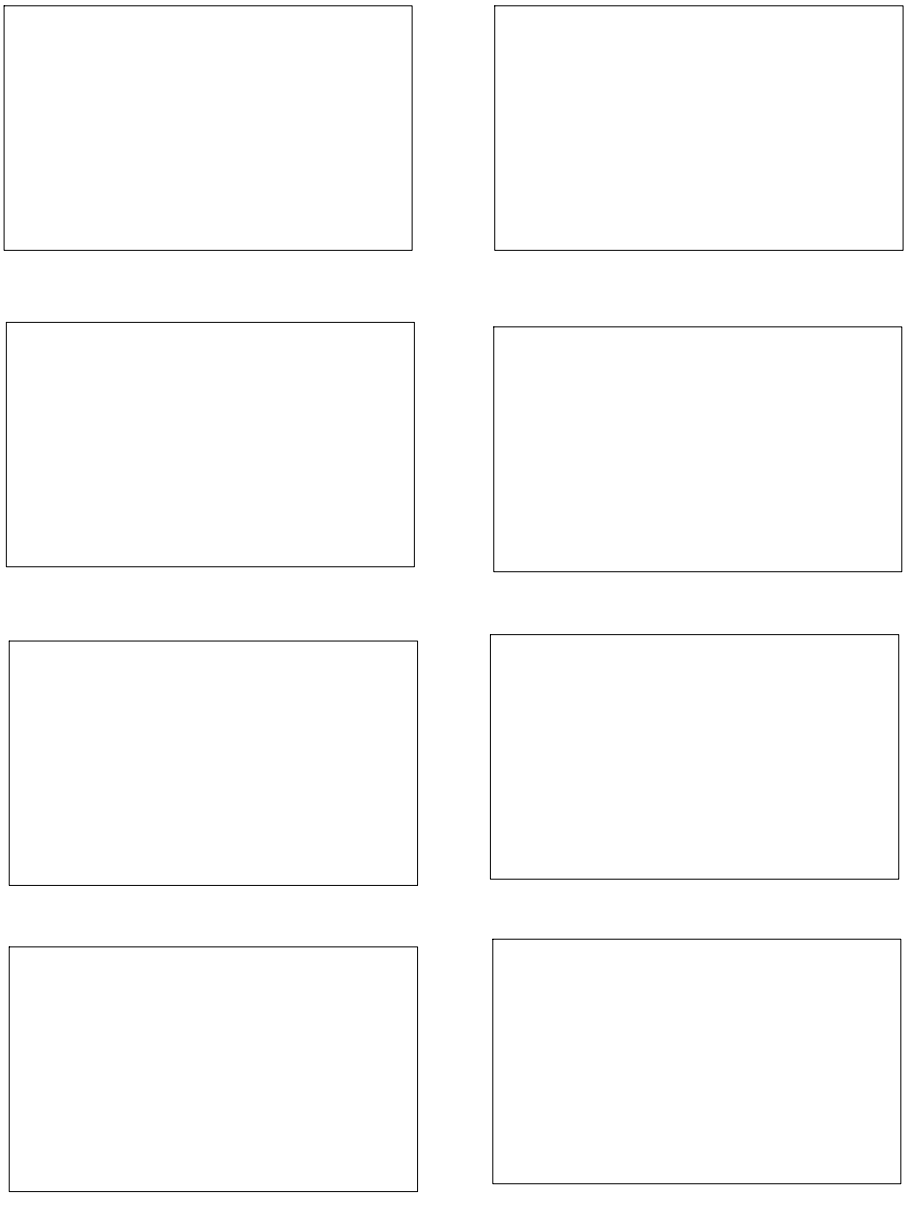

Figure 3: VAR-GARCH(1,1) Conditional Correlations between Bond Spreads and Negative News Index

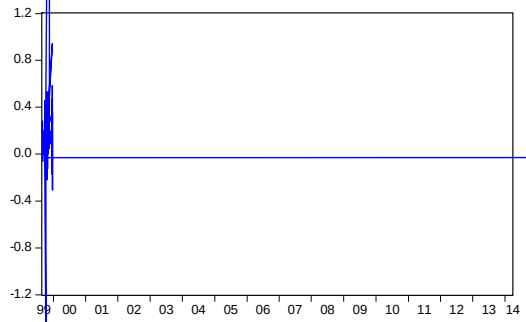

Figure 4: VAR-GARCH(1,1) Conditional Correlations between Bond Spreads and (Negative - Positive) News Index

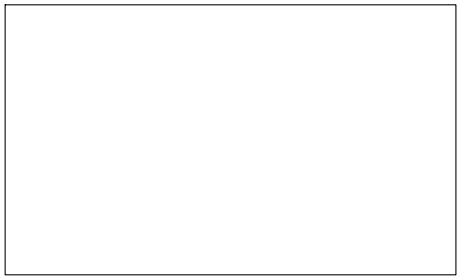

Table A2: Estimated VAR-GARCH(1,1) model for France.

Table A3: Estimated VAR-GARCH(1,1) model for Greece.

	Negative		Positive		Negative - Positive	
	Coe .	S.E.	Coe .	S.E.	Coe .	S.E.
			Conditional Mean Equation			
1	0 0795	0 0005	0 0278	0 0005	0 2181	0 0009
2	1 0043	0 0001	1 0042	0 0001	0 0043	0 0014
11	0 1137	0 0445	0 0829	0 0078		
12	0 0671	0 0007			0 0071	0 0026
*12	6 6801	0 0254			1 1388	0 1385
21						
11	0 0004	0 0002	0 0007	0 0002	0 0004	0 0002
			Conditional Variance Equation			
11	0 0011	0 0004	0 0019	0 0004	0 0031	0 0004
12	0 0001	0 0001	0 0001	0 0001	0 0081	0 0040
22	0 0001	0 0001	0 0001	0 0001	0 0001	0 0001
11	0 6681	0 0308	0 9509	0 0579	0 9733	0 0449
21	0 0154	0 0052	0 0344	0 0101	0 0028	0 0011
*21	0 0305	0 0061	0 0161	0 0063	0 0042	0 0021
22	0 9104	0 0226	0 4384	0 1211	0 9845	0 0041
11	0 8010	0 0304	0 3761	0 1377	0 2831	0 1490
21	0 0285	0 0032	0 0189	0 0086	0 0102	0 0041
*21	0 0381	0 0051	0 0028	0 0007	0 0057	0 0025
22	0 1576	0 0253	0 4307	0 1584	0 1267	0 0159
LogLik	7038 6525		6565 7693		5676 8021	
s±³¦¢¥[(10)	5 442		4 701		3 238	
2 s±³¦¢¥[(10)	4 862		3 956		2 031	
n¦¸´[(10)	3 995		3 667		3 659	
2 n¦¸´[(10)	4 001		4 054		2 228	

Table A4: Estimated VAR-GARCH(1,1) model for Ireland.

	Negative		Positive		Negative - Positive	
	Coe .	S.E.	Coe .	S.E.	Coe .	S.E.
			Conditional Mean Equation			
1	0 5936	0 0268	0 0342	0 0172	0 0273	0 0024
2	1 0042	0 0001	1 0041	0 0003	0 0051	0 0018
11	0 1001	0 0072	0 0880	0 0341	0 0633	0 0022
12	0 7576	0 0267				
*12	0 9096	0 1163			0 3271	0 1586
21						
11	0 0004	0 0002	0 0001	0 0001	0 0001	0 0001
			Conditional Variance Equation			
11	0 0023	0 0006	0 0022	0 0009	0 0008	0 0005
12	0 0001	0 0001	0 0058	0 0024	0 0596	0 0098
22	0 0001	0 0001	0 0001	0 0378	0 0001	0 3050
11	0 8840	0 0164	0 8343	0 0420	0 8256	0 0661
21	0 0178	0 0086	0 0354	0 0055	0 0750	0 0236
*21	0 0219	0 0062	0 0706	0 0130	0 0322	0 0105
22	0 8137	0 0697	0 8942	0 0384	0 5709	0 0929
11	0 4984	0 0405	0 5637	0 0620	0 2512	0 2536
21	0 0463	0 0157	0 0093	0 0045	0 1416	0 0192
*21	0 1104	0 0299	0 0237	0 0106	0 0531	0 0166
22	0 4327	0 0827	0 2649	0 0564	0 1915	0 0466
LogLik		7534 6744		6546 5535		1894 9771
s±³¦¢¥[(10)	2 003		4 337		4 442	
2 s±³¦¢¥[(10)	4 661		2 923		4 006	
n¦¸´[(10)	3 009		1 009		3 775	
2 n¦¸´[(10)	3 870		3 774		2 881	

Table A5 Estimated VAR-GARCH(1,1) model for Italy.

Table A6: Estimated VAR-GARCH(1,1) model for the Netherlands.

	Negative		Positive		Negative - Positive	
	Coe .	S.E.	Coe .	S.E.	Coe .	S.E.
			Conditional Mean Equation			
1	0 1260	0 0093	0 1723	0 0294	0 1325	0 0044
2	1 0205	0 0032	1 0154	0 0032	0 0087	0 0077
11	0 0534	0 0055	0 0975	0 0087	0 1963	0 0045
12			0 0776	0 0310		
$^{*}_{12}$	0 1388	0 0036				
21						
11	0 0002	0 0001	0 0001	0 0001	0 0001	0 0001
			Conditional Variance Equation			
11	0 0035	0 0007	0 0038	0 0018	0 0024	0 0011
12	0 0147	0 0031	0 0127	0 0031	0 0054	0 0310
22	0 0003	0 0003	0 0001	0 0001	0 0209	0 0064
11	0 7027	0 0277	0 7283	0 0520	0 8903	0 0276
21	0 1291	0 0227	0 1199	0 0524	0 0437	0 0213
$^{*}_{21}$	0 0675	0 0098	0 7174	0 2001	0 0561	0 0235
22	0 9731	0 0091	0 9763	0 0069	0 9663	0 0117
11	0 7424	0 0345	0 7034	0 0593	0 4645	0 0568
21	0 0992	0 0447	0			

Table A7: Estimated VAR-GARCH(1,1) model for Portugal.

	Negative		Positive		Negative - Positive	
	Coe .	S.E.	Coe .	S.E.	Coe .	S.E.
			Conditional Mean Equation			
1	0 6373	0 0305	0 1865	0 0019	0 1156	0 0018
2	1 0042	0 0001	1 0042	0 0002	0 0087	0 0027
11	0 2398	0 0034	0 0234	0 0045	0 5268	0 0022
12	0 7725	0 0304	0 0474	0 0024		
*12	4 2196	0 0223			0 0981	0 0445
21						
11	0 0005	0 0001	0 0001	0 0001	0 0008	0 0003
			Conditional Variance Equation			
11	0 0045	0 0007	0 0032	0 0009	0 0017	0 0011
12	0 0001	0 0001	0 0001	0 0001	0 0590	0 0026
22	0 0001	0 0001	0 0001	0 0001	0 0429	0 0113
11	0 6635	0 0133	0 8307	0 0378	0 6046	0 0505
21	0 0908	0 0177	0 0262	0 0033		
*21	0 0461	0 0153	0 0741	0 0124		
22	0 1941	0 0171	0 8514	0 0393	0 8112	0 0372
11	0 1716	0 0359	0 4698	0 0848	0 2689	0 0401
21	0 0616	0 0201	0 0404	0 0167	0 0234	0 0023
*21	0 0821	0 0139	0 0052	0 0001	0 0612	0 0097
22	0 3584	0 0878	0 0738	0 0356	0 0734	0 1279
LogLik		9044 0492		8694 7023		1441 2402
s±³¦¢¥[(10)	3 973		4 024		3 661	
2 s±³¦¢¥[(10)	3 447		3 669		4 895	
n¦¸´[(10)	4 024		3 098		3 502	
2 n¦¸´[(10)	4 553		2 884		2 908	

Table A8: Estimated VAR-GARCH(1,1) model for Spain.

	Negative		Positive		Negative - Positive	
	Coe .	S.E.	Coe .	S.E.	Coe .	S.E.
			Conditional Mean Equation			
1	0 2718	0 1249	0 0104	0 0041	0 0157	0 0007
2	1 0046	0 0001	1 0037	0 0004	0 0195	0 0053
11	0 0622	0 0098	0 2376	0 1092	0 0598	0 0245
21 0	0 0912	0				