

# Online Appendix<sup>1</sup>

## Further discussion of yields and default risks

In this article we focus on the yield to maturity (*YTM*) and spreads in such yields. *YTM* is the rate of total return for an investor who buys a bond at the current market price and holds it until maturity, assuming all payments are made in full and on time. It thus includes both interest (coupon payments) and capital gains (the difference between purchase price and principal payment). *YTM* is most easily formalized for a zero-coupon bond, such as US-Treasury bills, where there is only one cash flow,  $CF_M$ , at maturity ( $M$ ). For a market price of  $P_0$ , *YTM* can be calculated as:

$$YTM = \sqrt[M]{\frac{CF_M}{P_0}} - 1. \quad (\text{A-1})$$

However, when there is uncertainty about future returns or cash flows (e.g. default risk), the expected return,  $E[CF_M]$ , will no longer be equal to the face value return,  $CF_M$ , which is based on the assumption that all payments be made in full and on time. More specifically, default risk can be incorporated in expected returns the following way:

$$E[CF_M] = CF_M\tau + CF_Mx(1 - \tau), \quad (\text{A-2})$$

where  $\tau$  is the probability of receiving the full promised cash flow at maturity, and  $CF_Mx$  is the cash flow received in case of default, with  $x$  being the recovery rate, and  $0 \leq x < 1$ .

Because the possibility of default leads investors to expect a lower cash flow than promised ( $E[CF_M] < CF_M$ ), the expected rate of return,  $E[R]$ , will also be lower than the *YTM*. Similar to the *YTM*, the expected rate of return can be calculated as:

$$E[R] = \sqrt[M]{\frac{E[CF_M]}{P_0}} - 1 \quad (\text{A-3})$$

The key implication of equation A-2 is that if the risk of default ( $1 - \tau$ ) increases, the expected return,  $E[CF_M]$ , decreases. Equation A-3 further shows that the expected rate of return,  $E[R]$ , will decrease along with  $E[CF_M]$ . In short, riskier bonds yield lower expected rates of return, all else equal. In other words, to still provide an attractive expected rate of return, the price of a bond must drop when its risk increases.<sup>2</sup> As equation A-1 shows, this lower price implies a higher *YTM* for riskier bonds. If the

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<sup>1</sup>This material belongs to the following article: Bølstad J and Elhardt C (2015) To bail out or not to bail out? Crisis politics, credibility, and default risk in the Eurozone. *European Union Politics* 16(3).

<sup>2</sup>Risk neutral investors would be satisfied with a price reduction that maintains the expected return,

*YTM* on bonds from two otherwise similar issuers differ, we could thus interpret this spread as reflecting the difference in their perceived risk of default.<sup>3</sup>

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while risk averse investors would require an even lower price to receive an additional risk premium for holding risky bonds.

<sup>3</sup>Apart from default risks, liquidity and taxability are the key factors influencing bond spreads. Here, however, we focus on short-term changes in spreads, which these more stable factors rarely can account for (Johnson, 2009, ch. 3).

## Details on the robustness checks

**Table A1:** Full Results for the AR(2)DL Panel Model with a [-1,1]-Window

	$t + 1$		$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error	Estimate	Std. Error
Intercept			0.002	0.003		
Sta.Ger.Neg	-0.002	0.002	0.007***	0.002	0.001	0.002
Sta.EU.Neg	-0.002	0.009	0.002	0.004	-0.015**	0.006
Int.ECB.Neg	-0.023***	0.009	-0.002	0.004	-0.005	0.005
Sta.ECB.Neg	-0.016***	0.005	0.019***	0.007	0.002	0.005
Sta.RA.Neg	-0.004	0.005	0.008	0.008	-0.004	0.007
Dec.RA.Neg	-0.002	0.003	0.013***	0.004	-0.001	0.004
Sta.Ger.Pos	0.002	0.004	0.001	0.003	-0.005	0.005
Dec.Ger.Pos	-0.004	0.005	-0.006	0.005	-0.034***	0.012
Sta.EU.Pos	-0.003	0.004	-0.006	0.005	-0.001	0.010
Dec.EU.Pos	0.008	0.005	-0.041***	0.011	-0.016	0.012
Int.ECB.Pos	0.037***	0.012	0.033***	0.012	-0.076***	0.026
Sta.ECB.Pos	-0.010	0.006	-0.038***	0.009	-0.035***	0.006
Dec.ECB.Pos	-0.007*	0.004	-0.022**	0.010	-0.004	0.016
Dec.RA.Pos	0.010	0.008	-0.004	0.007	0.010***	0.004
Sta.Ger.Mix	0.001	0.002	-0.006**	0.002	0.007***	0.002
Sta.EU.Mix	0.002	0.004	-0.013***	0.004	0.005	0.005
Dec.EU.Mix	-0.015***	0.004	-0.005	0.006	0.012***	0.004
Sta.ECB.Mix	-0.009	0.009	0.005	0.019	-0.021**	0.010
2009.Q2			-0.006*	0.003		
2009.Q3			-0.006*	0.003		
2009.Q4			-0.001	0.003		
2010.Q1			0.001	0.004		
2010.Q2			0.014***	0.004		
2010.Q3			-0.001	0.003		
2010.Q4			0.000	0.003		
2011.Q1			-0.002	0.003		
2011.Q2			0.001	0.003		
2011.Q3			0.002	0.004		
2011.Q4			0.002	0.003		
2012.Q1			-0.005	0.004		
2012.Q2			-0.001	0.003		
2012.Q3			-0.001	0.003		
2012.Q4			-0.003	0.003		
$Y_{t-1}$			0.214***	0.030		
$Y_{t-2}$			-0.076***	0.024		
B-SE-Y-AR	0.864					

*Note:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $R^2 = 0.133$ ;  $N = 5185$ . The events have lags [-1,0,1] represented in columns 2-3, 4-5, and 6-7, respectively. The first quarter of 2009 is base category for the fixed effects. In the first column, events are denoted: Form.Actor.Direction, cf. Table 1. B-SE-Y-AR gives the p-value from the LM test for AR(1) by Bera, Sosa-Escudero and Yoon (2001). The standard errors are based on a generally heteroskedasticity consistent covariance matrix.

**Table A2:** Full Results for the AR(2)DL Panel Model with a [0,2]-Window

	$t$		$t - 1$		$t - 2$	
	Estimate	Std. Error	Estimate	Std. Error	Estimate	Std. Error
Intercept	0.004	0.003				
Sta.Ger.Neg	0.006***	0.002	0.001	0.002	0.002	0.002
Sta.EU.Neg	0.005	0.004	-0.016**	0.007	0.008	0.007
Int.ECB.Neg	-0.003	0.004	-0.002	0.005	0.005	0.008
Sta.ECB.Neg	0.021***	0.007	-0.002	0.005	0.020***	0.007
Sta.RA.Neg	0.017**	0.007	-0.009	0.007	0.024**	0.012
Dec.RA.Neg	0.012***	0.004	-0.003	0.003	-0.000	0.003
Sta.Ger.Pos	0.003	0.003	-0.005	0.004	-0.004	0.003
Dec.Ger.Pos	-0.006	0.005	-0.033***	0.012	0.017***	0.006
Sta.EU.Pos	-0.007	0.005	-0.000	0.009	-0.002	0.005
Dec.EU.Pos	-0.042***	0.011	-0.017	0.012	0.010*	0.006
Int.ECB.Pos	0.031***	0.012	-0.080***	0.027	0.011	0.008
Sta.ECB.Pos	-0.042***	0.008	-0.034***	0.006	0.001	0.007
Dec.ECB.Pos	-0.023**	0.010	-0.007	0.016	-0.003	0.008
Dec.RA.Pos	-0.002	0.007	0.008**	0.004	0.001	0.005
Sta.Ger.Mix	-0.004*	0.002	0.005**	0.002	0.003	0.002
Sta.EU.Mix	-0.011***	0.004	0.006	0.005	-0.007*	0.004
Dec.EU.Mix	-0.006	0.006	0.009**	0.004	-0.001	0.005
Sta.ECB.Mix	0.010	0.018	-0.020*	0.011	-0.044**	0.021
2009.Q2	-0.007*	0.003				
2009.Q3	-0.008**	0.003				
2009.Q4	-0.003	0.003				
2010.Q1	-0.001	0.004				
2010.Q2	0.012***	0.004				
2010.Q3	-0.002	0.003				
2010.Q4	-0.001	0.003				
2011.Q1	-0.004	0.003				
2011.Q2	-0.001	0.003				
2011.Q3	-0.001	0.004				
2011.Q4	-0.001	0.003				
2012.Q1	-0.008*	0.004				
2012.Q2	-0.004	0.003				
2012.Q3	-0.004	0.003				
2012.Q4	-0.004	0.003				
$Y_{t-1}$	0.226***	0.033				
$Y_{t-2}$	-0.076***	0.025				
B-SE-Y-AR	0.610					

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $R^2 = 0.133$ ;  $N = 5185$ . The events have lags [0,1,2] represented in columns 2-3, 4-5, and 6-7, respectively. The first quarter of 2009 is base category for the fixed effects. In the first column, events are denoted: Form.Actor.Direction, cf. Table 1. B-SE-Y-AR gives the p-value from the LM test for AR(1) by Bera, Sosa-Escudero and Yoon (2001). The standard errors are based on a generally heteroskedasticity consistent covariance matrix.

**Table A3:** Country-Specific AR(3)DL Model for Greece

	$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error
Intercept	0.001	0.006		
Sta.Ger.Neg	0.009	0.005	0.002	0.005
Sta.EU.Neg	0.001	0.008	-0.002	0.006
Int.ECB.Neg	-0.003	0.009	-0.006	0.006
Sta.ECB.Neg	0.001	0.020	-0.001	0.012
Sta.RA.Neg	0.013	0.011	-0.012	0.014
Dec.RA.Neg	0.013	0.010	-0.001	0.008
Sta.Ger.Pos	-0.003	0.008	0.016	0.012
Dec.Ger.Pos	0.007	0.013	-0.053	0.046
Sta.EU.Pos	0.001	0.017	-0.019	0.012
Dec.EU.Pos	-0.031	0.042	-0.017	0.045
Int.ECB.Pos	0.062**	0.026	-0.082	0.102
Sta.ECB.Pos	-0.004	0.006	-0.024**	0.011
Dec.ECB.Pos	-0.036	0.036	-0.072	0.081
Dec.RA.Pos	-0.000	0.025	-0.004	0.032
Sta.Ger.Mix	-0.002	0.006	0.005	0.007
Sta.EU.Mix	-0.006	0.010	0.001	0.007
Dec.EU.Mix	-0.013	0.019	0.006	0.015
Sta.ECB.Mix	0.039	0.065	-0.003	0.024
2009.Q2	-0.008	0.007		
2009.Q3	-0.006	0.007		
2009.Q4	0.008	0.008		
2010.Q1	0.002	0.008		
2010.Q2	0.019*	0.011		
2010.Q3	-0.001	0.006		
2010.Q4	0.002	0.006		
2011.Q1	-0.002	0.006		
2011.Q2	0.003	0.006		
2011.Q3	0.008	0.007		
2011.Q4	0.008	0.008		
2012.Q1	-0.009	0.017		
2012.Q2	0.001	0.007		
2012.Q3	-0.006	0.007		
2012.Q4	-0.007	0.007		
$Y_{t-1}$	0.111	0.107		
$Y_{t-2}$	-0.007	0.060		
$Y_{t-3}$	-0.134	0.113		
ARCH-LM(2)	0.666			
ARCH-LM(5)	0.371			
Ljung-Box(5)	0.899			

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $N = 1037$ . The standard errors are based on a generally heteroskedasticity consistent covariance matrix. ARCH-LM(2) gives Engle's LM ARCH test with 2 lags; ARCH-LM(5) with 5 lags. Ljung-Box(5) gives an AR-test using the Q-statistic of Ljung and Box (1978) with 5 lags. The reported test results are  $p$ -values.

**Table A4:** Country-Specific AR(2)DL Model for Italy

	$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error
Intercept	0.001	0.006		
Sta.Ger.Neg	0.007*	0.004	-0.001	0.004
Sta.EU.Neg	-0.011	0.011	-0.033	0.034
Int.ECB.Neg	0.004	0.006	-0.015	0.034
Sta.ECB.Neg	0.044***	0.012	-0.010**	0.005
Sta.RA.Neg	0.014	0.028	-0.009	0.031
Dec.RA.Neg	0.007	0.009	-0.014**	0.006
Sta.Ger.Pos	0.001	0.009	-0.017	0.015
Dec.Ger.Pos	-0.012	0.011	-0.020	0.028
Sta.EU.Pos	-0.005	0.015	0.006	0.029
Dec.EU.Pos	-0.045*	0.025	-0.007	0.026
Int.ECB.Pos	0.029	0.026	-0.069	0.060
Sta.ECB.Pos	-0.059***	0.017	-0.048***	0.012
Dec.ECB.Pos	-0.005	0.022	0.005	0.018
Dec.RA.Pos	-0.008	0.021	0.009	0.011
Sta.Ger.Mix	-0.009	0.006	0.003	0.005
Sta.EU.Mix	-0.022**	0.011	0.003	0.012
Dec.EU.Mix	-0.001	0.018	0.028***	0.007
Sta.ECB.Mix	0.012	0.125	-0.038	0.076
2009.Q2	-0.007	0.008		
2009.Q3	-0.004	0.008		
2009.Q4	-0.005	0.008		
2010.Q1	0.003	0.008		
2010.Q2	0.013	0.010		
2010.Q3	-0.000	0.007		
2010.Q4	0.000	0.008		
2011.Q1	-0.003	0.008		
2011.Q2	0.003	0.008		
2011.Q3	0.009	0.010		
2011.Q4	0.003	0.009		
2012.Q1	-0.007	0.008		
2012.Q2	0.004	0.008		
2012.Q3	0.002	0.008		
2012.Q4	0.002	0.008		
$Y_{t-1}$	0.206***	0.045		
$Y_{t-2}$	-0.134**	0.053		
ARCH-LM(2)	0.000			
ARCH-LM(5)	0.000			
Ljung-Box(5)	0.228			

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $N = 1037$ . The standard errors are based on a generally heteroskedasticity consistent covariance matrix. ARCH-LM(2) gives Engle's LM ARCH test with 2 lags; ARCH-LM(5) with 5 lags. Ljung-Box(5) gives an AR-test using the Q-statistic of Ljung and Box (1978) with 5 lags. The reported test results are  $p$ -values.

**Table A5:** Country-Specific AR(2)DL Model for Ireland

	$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error
Intercept	0.009	0.006		
Sta.Ger.Neg	0.004	0.003	0.003	0.003
Sta.EU.Neg	0.002	0.011	-0.010*	0.006
Int.ECB.Neg	-0.015	0.020	0.008	0.008
Sta.ECB.Neg	0.015**	0.007	0.004	0.017
Sta.RA.Neg	0.006	0.011	-0.002	0.009
Dec.RA.Neg	0.010	0.006	-0.001	0.008
Sta.Ger.Pos	0.003	0.007	-0.006	0.007
Dec.Ger.Pos	-0.020	0.014	-0.026	0.036
Sta.EU.Pos	-0.007	0.010	0.014	0.025
Dec.EU.Pos	-0.036	0.034	-0.018	0.034
Int.ECB.Pos	-0.001	0.022	-0.068	0.080
Sta.ECB.Pos	-0.025	0.016	-0.026***	0.006
Dec.ECB.Pos	-0.028	0.027	0.012	0.013
Dec.RA.Pos	-0.005	0.011	0.001	0.006
Sta.Ger.Mix	-0.002	0.004	0.007	0.006
Sta.EU.Mix	-0.011**	0.006	0.011	0.009
Dec.EU.Mix	-0.004	0.012	0.001	0.005
Sta.ECB.Mix	0.002	0.039	-0.012	0.026
2009.Q2	-0.009	0.007		
2009.Q3	-0.014**	0.007		
2009.Q4	-0.009	0.007		
2010.Q1	-0.010	0.007		
2010.Q2	0.005	0.009		
2010.Q3	-0.005	0.007		
2010.Q4	-0.006	0.007		
2011.Q1	-0.008	0.006		
2011.Q2	-0.007	0.006		
2011.Q3	-0.013*	0.007		
2011.Q4	-0.007	0.007		
2012.Q1	-0.013**	0.006		
2012.Q2	-0.011*	0.006		
2012.Q3	-0.009	0.006		
2012.Q4	-0.008	0.006		
$Y_{t-1}$	0.246***	0.062		
$Y_{t-2}$	-0.020	0.047		
ARCH-LM(2)	0.016			
ARCH-LM(5)	0.015			
Ljung-Box(5)	0.311			

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $N = 1037$ . The standard errors are based on a generally heteroskedasticity consistent covariance matrix. ARCH-LM(2) gives Engle's LM ARCH test with 2 lags; ARCH-LM(5) with 5 lags. Ljung-Box(5) gives an AR-test using the Q-statistic of Ljung and Box (1978) with 5 lags. The reported test results are  $p$ -values.

**Table A6:** Country-Specific AR(2)DL Model for Portugal

	$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error
Intercept	0.005	0.007		
Sta.Ger.Neg	0.006	0.004	-0.000	0.004
Sta.EU.Neg	0.012	0.008	0.000	0.007
Int.ECB.Neg	-0.004	0.006	0.004	0.007
Sta.ECB.Neg	-0.002	0.007	0.004	0.016
Sta.RA.Neg	0.009	0.014	-0.025	0.016
Dec.RA.Neg	0.012	0.010	0.018*	0.011
Sta.Ger.Pos	-0.000	0.010	-0.011	0.009
Dec.Ger.Pos	-0.004	0.010	-0.042	0.043
Sta.EU.Pos	-0.020*	0.012	-0.006	0.031
Dec.EU.Pos	-0.038	0.040	-0.021	0.041
Int.ECB.Pos	0.052*	0.030	-0.103	0.101
Sta.ECB.Pos	-0.038*	0.020	-0.023	0.027
Dec.ECB.Pos	-0.026	0.034	0.016	0.017
Dec.RA.Pos	0.007	0.012	0.003	0.008
Sta.Ger.Mix	-0.004	0.006	0.006	0.007
Sta.EU.Mix	-0.005	0.015	0.015	0.017
Dec.EU.Mix	-0.005	0.015	-0.003	0.009
Sta.ECB.Mix	0.003	0.017	-0.013	0.009
2009.Q2	-0.008	0.009		
2009.Q3	-0.011	0.009		
2009.Q4	-0.005	0.009		
2010.Q1	0.001	0.010		
2010.Q2	0.013	0.011		
2010.Q3	-0.003	0.008		
2010.Q4	-0.006	0.008		
2011.Q1	-0.002	0.008		
2011.Q2	-0.002	0.008		
2011.Q3	-0.004	0.008		
2011.Q4	-0.001	0.008		
2012.Q1	-0.008	0.008		
2012.Q2	-0.008	0.007		
2012.Q3	-0.003	0.008		
2012.Q4	-0.005	0.008		
$Y_{t-1}$	0.302***	0.050		
$Y_{t-2}$	-0.108*	0.061		
ARCH-LM(2)	0.003			
ARCH-LM(5)	0.001			
Ljung-Box(5)	0.309			

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $N = 1037$ . The standard errors are based on a generally heteroskedasticity consistent covariance matrix. ARCH-LM(2) gives Engle's LM ARCH test with 2 lags; ARCH-LM(5) with 5 lags. Ljung-Box(5) gives an AR-test using the Q-statistic of Ljung and Box (1978) with 5 lags. The reported test results are  $p$ -values.



**Table A7:** Country-Specific AR(3)DL Model for Spain

	$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error
Intercept	0.000	0.006		
Sta.Ger.Neg	0.006	0.004	0.002	0.004
Sta.EU.Neg	0.006	0.007	-0.035**	0.016
Int.ECB.Neg	0.003	0.012	-0.008	0.023
Sta.ECB.Neg	0.048***	0.007	-0.011	0.022
Sta.RA.Neg	0.039*	0.023	-0.004	0.028
Dec.RA.Neg	0.015*	0.009	-0.014**	0.007
Sta.Ger.Pos	-0.003	0.008	-0.012	0.011
Dec.Ger.Pos	-0.005	0.012	-0.025	0.036
Sta.EU.Pos	-0.003	0.018	-0.003	0.036
Dec.EU.Pos	-0.051	0.032	-0.010	0.034
Int.ECB.Pos	0.017	0.045	-0.052	0.075
Sta.ECB.Pos	-0.054	0.039	-0.049**	0.021
Dec.ECB.Pos	-0.010	0.027	0.024	0.021
Dec.RA.Pos	-0.001	0.018	0.016	0.011
Sta.Ger.Mix	-0.006	0.006	0.007	0.006
Sta.EU.Mix	-0.018*	0.009	-0.001	0.012
Dec.EU.Mix	0.002	0.017	0.024***	0.009
Sta.ECB.Mix	-0.028	0.138	-0.033***	0.008
2009.Q2	-0.003	0.009		
2009.Q3	-0.004	0.009		
2009.Q4	-0.000	0.009		
2010.Q1	0.004	0.009		
2010.Q2	0.018*	0.010		
2010.Q3	-0.001	0.007		
2010.Q4	0.003	0.007		
2011.Q1	-0.005	0.007		
2011.Q2	0.003	0.007		
2011.Q3	0.002	0.009		
2011.Q4	-0.001	0.009		
2012.Q1	-0.003	0.007		
2012.Q2	0.004	0.007		
2012.Q3	0.002	0.008		
2012.Q4	0.002	0.007		
$Y_{t-1}$	0.237***	0.049		
$Y_{t-2}$	-0.095**	0.047		
$Y_{t-3}$	-0.100***	0.038		
ARCH-LM(2)	0.000			
ARCH-LM(5)	0.000			
Ljung-Box(5)	0.960			

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $N = 1037$ . The standard errors are based on a generally heteroskedasticity consistent covariance matrix. ARCH-LM(2) gives Engle's LM ARCH test with 2 lags; ARCH-LM(5) with 5 lags. Ljung-Box(5) gives an AR-test using the Q-statistic of Ljung and Box (1978) with 5 lags. The reported test results are  $p$ -values.

**Table A8:** Country-Specific AR(2)DL-GARCH(1,1) Model for Greece

	$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error
<i>Conditional mean equation:</i>				
Intercept	-0.004	0.013		
Sta.Ger.Neg	0.002	0.003	0.003	0.002
Sta.EU.Neg	0.003	0.007	0.004*	0.002
Int.ECB.Neg	0.001	0.004	0.001	0.004
Sta.ECB.Neg	0.016***	0.005	0.013**	0.006
Sta.RA.Neg	0.017	0.015	0.010	0.009
Dec.RA.Neg	0.003	0.004	-0.002	0.004
Sta.Ger.Pos	-0.002	0.004	0.005	0.006
Dec.Ger.Pos	-0.020***	0.006	-0.046***	0.013
Sta.EU.Pos	-0.002	0.017	-0.007	0.018
Dec.EU.Pos	-0.013**	0.005	-0.007	0.013
Int.ECB.Pos	0.003	0.014	0.014	0.016
Sta.ECB.Pos	0.004	0.003	-0.016	0.010
Dec.ECB.Pos	0.020**	0.010	-0.000	0.003
Dec.RA.Pos	0.018	0.013	-0.004	0.011
Sta.Ger.Mix	0.004	0.003	0.003	0.004
Sta.EU.Mix	-0.009	0.006	-0.012	0.008
Dec.EU.Mix	-0.011***	0.004	0.009	0.010
Sta.ECB.Mix	0.006	0.004	0.000	0.015
2009.Q2	0.005	0.014		
2009.Q3	-0.006	0.014		
2009.Q4	0.008	0.013		
2010.Q1	0.009	0.017		
2010.Q2	0.012	0.015		
2010.Q3	0.005	0.013		
2010.Q4	0.006	0.014		
2011.Q1	0.007	0.014		
2011.Q2	0.003	0.013		
2011.Q3	0.012	0.013		
2011.Q4	0.006	0.013		
2012.Q1	0.011	0.015		
2012.Q2	0.001	0.014		
2012.Q3	-0.000	0.013		
2012.Q4	-0.007	0.014		
$Y_{t-1}$	0.339***	0.070		
$Y_{t-2}$	-0.017	0.067		
<i>Conditional variance equation:</i>				
Intercept	0.000*	0.000		
$\varepsilon_{t-1}^2$	0.451***	0.099		
$\sigma_{t-1}^2$	0.548***	0.064		
ARCH-LM(2)	0.757			
ARCH-LM(5)	0.330			
Ljung-Box(5)	0.834			
Ljung-Box <sup>2</sup> (5)	0.115			

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $N = 1037$ . ARCH-LM(2) gives Engle's LM ARCH test with 2 lags; ARCH-LM(5) with 5 lags. Ljung-Box(5) gives an AR-test using the Q-statistic of Ljung and Box (1978) based on standardized residuals and 5 lags; Ljung-Box<sup>2</sup>(5) is based on squared residuals. The reported test results are  $p$ -values.

**Table A9:** Country-Specific AR(2)DL-GARCH(1,1) Model for Italy

	$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error
<i>Conditional mean equation:</i>				
Intercept	0.007	0.006		
Sta.Ger.Neg	0.006	0.004	-0.000	0.003
Sta.EU.Neg	-0.008*	0.005	-0.044**	0.022
Int.ECB.Neg	0.003	0.007	-0.013	0.010
Sta.ECB.Neg	0.044***	0.009	-0.006	0.004
Sta.RA.Neg	0.011	0.028	-0.023	0.017
Dec.RA.Neg	0.000	0.007	-0.015***	0.005
Sta.Ger.Pos	0.000	0.007	-0.001	0.008
Dec.Ger.Pos	-0.026**	0.012	0.003	0.012
Sta.EU.Pos	-0.006	0.014	-0.006	0.020
Dec.EU.Pos	-0.020	0.013	-0.013	0.012
Int.ECB.Pos	0.011	0.033	-0.036	0.028
Sta.ECB.Pos	-0.055***	0.009	-0.064***	0.009
Dec.ECB.Pos	0.016*	0.008	0.011	0.008
Dec.RA.Pos	-0.009	0.011	0.003	0.006
Sta.Ger.Mix	-0.006	0.005	0.002	0.006
Sta.EU.Mix	-0.018**	0.008	0.010	0.006
Dec.EU.Mix	0.000	0.010	0.019***	0.006
Sta.ECB.Mix	0.047	0.048	-0.075***	0.014
2009.Q2	-0.011	0.007		
2009.Q3	-0.008	0.009		
2009.Q4	-0.012	0.008		
2010.Q1	-0.004	0.008		
2010.Q2	-0.003	0.010		
2010.Q3	-0.004	0.008		
2010.Q4	-0.006	0.008		
2011.Q1	-0.010	0.007		
2011.Q2	-0.004	0.008		
2011.Q3	0.000	0.009		
2011.Q4	-0.003	0.007		
2012.Q1	-0.011	0.008		
2012.Q2	0.000	0.007		
2012.Q3	-0.006	0.008		
2012.Q4	-0.006	0.007		
$Y_{t-1}$	0.238***	0.037		
$Y_{t-2}$	-0.157***	0.037		
<i>Conditional variance equation:</i>				
Intercept	0.000**	0.000		
$\varepsilon_{t-1}^2$	0.256***	0.069		
$\sigma_{t-1}^2$	0.630***	0.101		
ARCH-LM(2)	0.514			
ARCH-LM(5)	0.327			
Ljung-Box(5)	0.450			
Ljung-Box <sup>2</sup> (5)	0.106			

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $N = 1037$ . ARCH-LM(2) gives Engle's LM ARCH test with 2 lags; ARCH-LM(5) with 5 lags. Ljung-Box(5) gives an AR-test using the Q-statistic of Ljung and Box (1978) based on standardized residuals and 5 lags; Ljung-Box<sup>2</sup>(5) is based on squared residuals. The reported test results are  $p$ -values.

**Table A10:** Country-Specific AR(2)DL-GARCH(1,1) Model for Ireland

	$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error
<i>Conditional mean equation:</i>				
Intercept	0.010	0.009		
Sta.Ger.Neg	0.000	0.003	-0.000	0.004
Sta.EU.Neg	0.001	0.008	-0.014***	0.003
Int.ECB.Neg	-0.012	0.009	0.005	0.004
Sta.ECB.Neg	0.014***	0.004	0.004	0.007
Sta.RA.Neg	0.005	0.004	0.005	0.004
Dec.RA.Neg	0.006	0.005	0.006	0.009
Sta.Ger.Pos	0.003	0.004	-0.007*	0.004
Dec.Ger.Pos	-0.040***	0.015	-0.013*	0.008
Sta.EU.Pos	-0.007	0.013	0.009	0.015
Dec.EU.Pos	-0.015	0.017	-0.015**	0.007
Int.ECB.Pos	-0.027	0.022	-0.020	0.027
Sta.ECB.Pos	-0.027***	0.010	-0.031***	0.009
Dec.ECB.Pos	-0.004	0.004	0.003	0.006
Dec.RA.Pos	-0.007	0.005	0.004	0.003
Sta.Ger.Mix	-0.000	0.003	0.002	0.003
Sta.EU.Mix	-0.006	0.005	0.004	0.007
Dec.EU.Mix	-0.003	0.007	0.000	0.004
Sta.ECB.Mix	0.019	0.015	-0.012	0.009
2009.Q2	-0.002	0.014		
2009.Q3	-0.017	0.012		
2009.Q4	-0.010	0.011		
2010.Q1	-0.009	0.010		
2010.Q2	-0.011	0.014		
2010.Q3	-0.004	0.012		
2010.Q4	-0.006	0.011		
2011.Q1	-0.007	0.009		
2011.Q2	-0.006	0.010		
2011.Q3	-0.012	0.012		
2011.Q4	-0.006	0.010		
2012.Q1	-0.013	0.010		
2012.Q2	-0.009	0.010		
2012.Q3	-0.011	0.010		
2012.Q4	-0.010	0.010		
$Y_{t-1}$	0.259***	0.041		
$Y_{t-2}$	-0.033	0.047		
<i>Conditional variance equation:</i>				
Intercept	0.000	0.000		
$\varepsilon_{t-1}^2$	0.179***	0.063		
$\sigma_{t-1}^2$	0.792***	0.078		
ARCH-LM(2)	0.950			
ARCH-LM(5)	0.820			
Ljung-Box(5)	0.274			
Ljung-Box <sup>2</sup> (5)	0.530			

*Note:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $N = 1037$ . ARCH-LM(2) gives Engle's LM ARCH test with 2 lags; ARCH-LM(5) with 5 lags. Ljung-Box(5) gives an AR-test using the Q-statistic of Ljung and Box (1978) based on standardized residuals and 5 lags; Ljung-Box<sup>2</sup>(5) is based on squared residuals. The reported test results are  $p$ -values.

**Table A11:** Country-Specific AR(2)DL-GARCH(1,1) Model for Portugal

	$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error
<i>Conditional mean equation:</i>				
Intercept	-0.001	0.007		
Sta.Ger.Neg	0.005**	0.002	0.001	0.003
Sta.EU.Neg	0.016*	0.008	0.002	0.004
Int.ECB.Neg	-0.014***	0.004	-0.009*	0.005
Sta.ECB.Neg	-0.002	0.007	0.002	0.012
Sta.RA.Neg	0.007	0.010	-0.008	0.006
Dec.RA.Neg	0.005	0.009	0.017*	0.009
Sta.Ger.Pos	-0.002	0.010	-0.008	0.010
Dec.Ger.Pos	-0.008	0.007	-0.010	0.006
Sta.EU.Pos	-0.013	0.018	-0.014	0.013
Dec.EU.Pos	-0.007	0.011	-0.008	0.010
Int.ECB.Pos	0.018	0.021	0.004	0.015
Sta.ECB.Pos	-0.026	0.017	-0.021	0.026
Dec.ECB.Pos	-0.002	0.006	-0.008	0.008
Dec.RA.Pos	0.001	0.006	0.004	0.006
Sta.Ger.Mix	-0.004	0.003	-0.002	0.003
Sta.EU.Mix	0.011	0.011	0.012	0.013
Dec.EU.Mix	-0.015*	0.008	-0.012	0.008
Sta.ECB.Mix	0.018	0.013	0.014**	0.005
2009.Q2	0.002	0.010		
2009.Q3	-0.005	0.010		
2009.Q4	-0.002	0.010		
2010.Q1	0.007	0.013		
2010.Q2	0.005	0.016		
2010.Q3	0.009	0.009		
2010.Q4	0.003	0.010		
2011.Q1	0.004	0.008		
2011.Q2	0.016*	0.009		
2011.Q3	0.003	0.009		
2011.Q4	0.002	0.008		
2012.Q1	0.006	0.010		
2012.Q2	-0.002	0.009		
2012.Q3	0.002	0.011		
2012.Q4	-0.002	0.010		
$Y_{t-1}$	0.297***	0.053		
$Y_{t-2}$	-0.058	0.039		
<i>Conditional variance equation:</i>				
Intercept	0.000*	0.000		
$\varepsilon_{t-1}^2$	0.261***	0.061		
$\sigma_{t-1}^2$	0.738***	0.059		
ARCH-LM(2)	0.427			
ARCH-LM(5)	0.596			
Ljung-Box(5)	0.289			
Ljung-Box <sup>2</sup> (5)	0.284			

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $N = 1037$ . ARCH-LM(2) gives Engle's LM ARCH test with 2 lags; ARCH-LM(5) with 5 lags. Ljung-Box(5) gives an AR-test using the Q-statistic of Ljung and Box (1978) based on standardized residuals and 5 lags; Ljung-Box<sup>2</sup>(5) is based on squared residuals. The reported test results are  $p$ -values.

**Table A12:** Country-Specific AR(2)DL-GARCH(1,1) Model for Spain

	$t$		$t - 1$	
	Estimate	Std. Error	Estimate	Std. Error
<i>Conditional mean equation:</i>				
Intercept	-0.014*	0.008		
Sta.Ger.Neg	0.004	0.004	-0.001	0.003
Sta.EU.Neg	0.010	0.008	-0.044***	0.011
Int.ECB.Neg	0.002	0.006	-0.004	0.007
Sta.ECB.Neg	0.050***	0.006	-0.011	0.017
Sta.RA.Neg	0.029	0.018	-0.008	0.024
Dec.RA.Neg	0.007	0.006	-0.015***	0.006
Sta.Ger.Pos	-0.001	0.009	-0.001	0.008
Dec.Ger.Pos	-0.016	0.022	-0.009	0.016
Sta.EU.Pos	-0.006	0.011	-0.011	0.020
Dec.EU.Pos	-0.029	0.020	-0.019	0.015
Int.ECB.Pos	0.010	0.089	0.005	0.055
Sta.ECB.Pos	-0.046	0.030	-0.052**	0.022
Dec.ECB.Pos	0.020	0.015	0.026**	0.010
Dec.RA.Pos	-0.001	0.012	0.011	0.010
Sta.Ger.Mix	0.000	0.006	0.005	0.006
Sta.EU.Mix	-0.013**	0.006	0.008	0.006
Dec.EU.Mix	-0.002	0.012	0.013**	0.007
Sta.ECB.Mix	0.023	0.051	-0.008	0.020
2009.Q2	0.011	0.012		
2009.Q3	-0.008	0.018		
2009.Q4	0.014	0.010		
2010.Q1	0.016*	0.008		
2010.Q2	0.023*	0.012		
2010.Q3	0.015*	0.009		
2010.Q4	0.015*	0.009		
2011.Q1	0.011	0.008		
2011.Q2	0.016*	0.009		
2011.Q3	0.021**	0.010		
2011.Q4	0.015	0.011		
2012.Q1	0.011	0.009		
2012.Q2	0.021**	0.009		
2012.Q3	0.016*	0.009		
2012.Q4	0.013	0.008		
$Y_{t-1}$	0.277***	0.066		
$Y_{t-2}$	-0.156***	0.042		
<i>Conditional variance equation:</i>				
Intercept	0.000	0.000		
$\varepsilon_{t-1}^2$	0.318**	0.125		
$\sigma_{t-1}^2$	0.636***	0.184		
ARCH-LM(2)	0.414			
ARCH-LM(5)	0.553			
Ljung-Box(5)	0.039			
Ljung-Box <sup>2</sup> (5)	0.245			

*Note:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ;  $N = 1037$ . ARCH-LM(2) gives Engle's LM ARCH test with 2 lags; ARCH-LM(5) with 5 lags. Ljung-Box(5) gives an AR-test using the Q-statistic of Ljung and Box (1978) based on standardized residuals and 5 lags; Ljung-Box<sup>2</sup>(5) is based on squared residuals. The reported test results are  $p$ -values.

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