

Reforming EU Fiscal Governance
European Central Bank

Sovereign Bond Market Reactions to Fiscal Rules and No-Bailout Clauses – The Swiss Experience

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Motivation

- **Starting point: Economic and financial crisis**
- **Markets lost confidence in sustainability of public finances**
- **Investors demand much higher compensations for growing default risk**
 - Euro countries (esp. Greece, Ireland, Portugal)
 - US States (esp. California, Illinois)
- **Can political measures help to restore confidence**
 - Fiscal Rules
 - Credible No-Bailout Clause

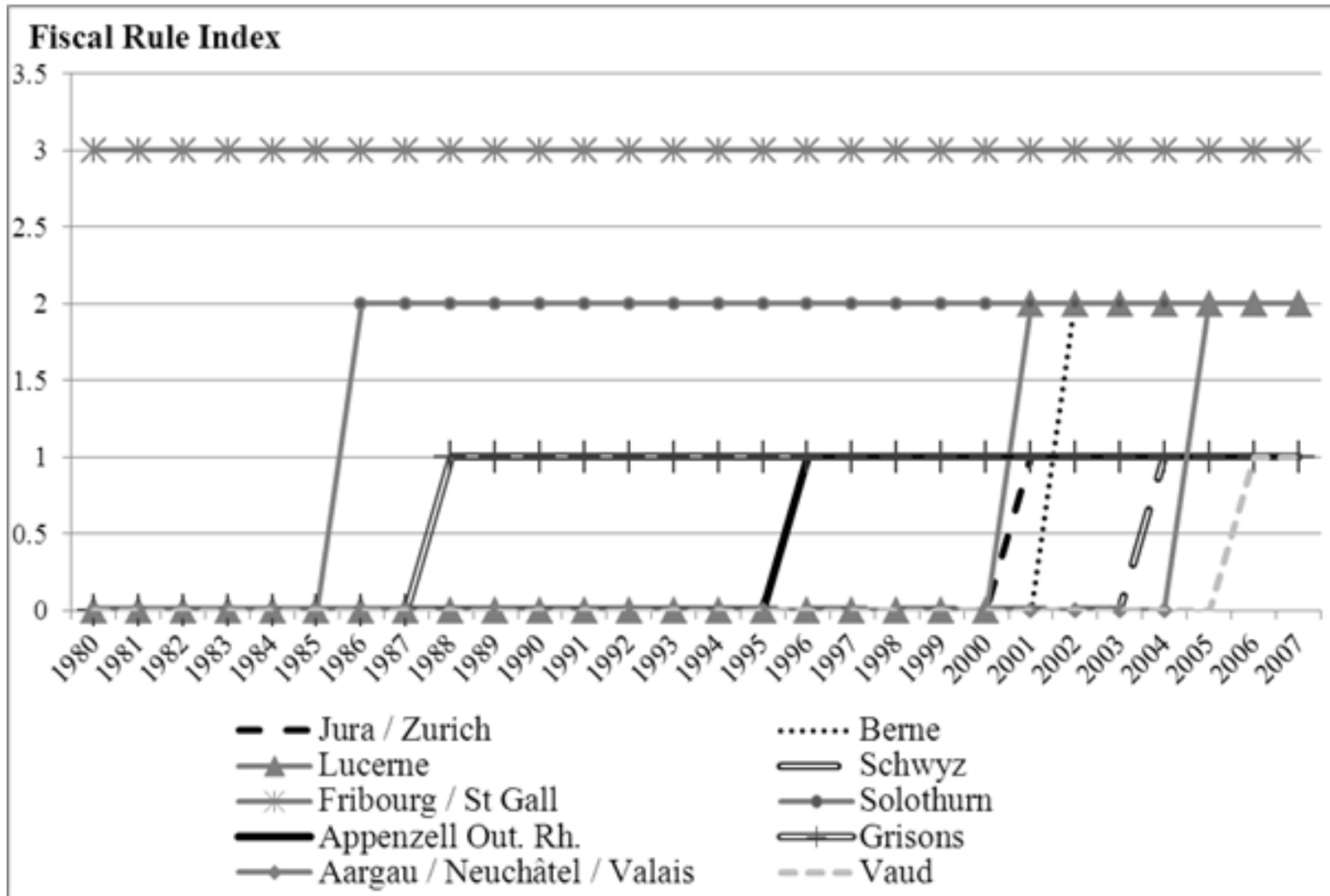
Why Switzerland?

- **Swiss system as a perfect laboratory**
 - Extensive competitive fiscal federalism
 - High cantonal autonomy (taxes, expenditure, fiscal framework)
 - Little institutional and cultural differences
- **Court decision in 2003 changed the federal system**
 - Fully credible no-bailout regime at the cantonal level
 - Cantons are not liable for municipalities in financial distress
- **Swiss cantons issue tradable bonds**
 - Bond market data on 308 cantonal bonds
 - Period 1981 to 2007

Cantonal Fiscal Rules

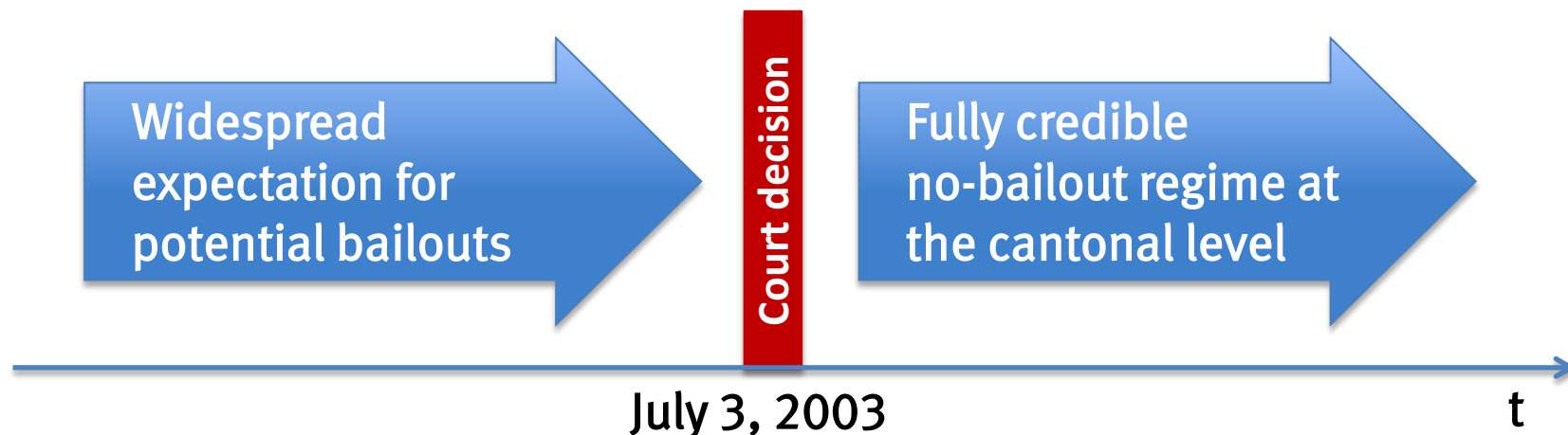
- **Cantons have their own fiscal framework**
- **Major components of cantonal fiscal rules**
 - Connection of budget planning with actual budget execution
 - Strong numerical constraints
 - Effective sanctions in the form of automatic tax adjustments
- **Fiscal Rule Index (Feld and Kirchgässner, 2008)**
 - Ordinal scale from 0 (no rule) to 3 (strongest rule)

Cantonal Fiscal Rules



(Credible) No-Bailout Clause

- **Leukerbad court decision in 2003**
 - Canton Valais is not obliged to help the highly indebted municipality Leukerbad
 - Municipality was not bailed out by the canton
 - Creditors had to bear the cost of their defaulted investment
- **Structural break**



Hypothesis

- **Fiscal-Rules**
 - Positive impact on market participant's confidence
 - Fiscal rules limit debt and deficits and should therefore make public finance more sustainable
 - Financial markets should adopt this
- **Credible No-Bailout Regime**
 - Costs for Swiss cantons for serving as a potential bailout reflect in higher levels of cantonal yield spreads before the court decision
 - Spillover of municipal deficits before the court decision
 - Cantonal risk premia increase with a higher probability of municipal defaults

Estimation Strategy

- Data cover 18 of the 26 Swiss cantons (1981 - 2007)

$$\begin{aligned} \text{Yieldspread (cantonal bond to Swiss federal bond)} = & \\ & + \text{Fiscal Rule Index} \\ & + \text{No – Bailout Dummy (1 after July 3, 2003)} \\ & + \text{Interaction Effects} \\ & + \text{Controls} \\ & + \text{Timetrend} + \text{Canton Fixed Effects} + \varepsilon \end{aligned}$$

- Error terms are clustered on cantonal-year levels and corrected for heteroscedasticity

Estimation Strategy

- **Control variables**
 - Cantonal debt
 - Cantonal deficit
 - Communal deficit (aggregated on a cantonal level)
 - Liquidity premium (issue volume of bonds)
 - Risk Aversion (low grade US corporate bond – US federal bond)
 - Time to maturity
- **Interactions of fiscal variables and fiscal rules excluded**
 - No significant impact on yield spreads

Dep. Variable: Yield Spread	(1)	(2)	(3)	(4)
Debt Canton	+***	+***	+**	+**
Deficit Canton	+***	+***	+***	+***
Deficit Municipalities	+**	+**	+**	+**
Liquidity	-	-*	-	+
Risk Aversion	+***	+***	+***	+***
Duration	-	-	-	-
Dummy Fiscal Rule	-0.170*** (-3.997)			
Fiscal-Rule-Index		-0.101*** (-3.936)	-0.052** (-2.030)	-0.053** (-2.130)
No-bailout Dummy			-0.255*** (-6.807)	-0.277*** (-7.008)
No-bailout Dummy × Deficit Municipalities				-15.85* (-1.739)
Observations	7,919	7,919	7,919	7,919
R ²	0.145	0.144	0.170	0.172

Robustness Checks

- **Potential endogeneity of fiscal institutions**
 - Alleviated by use of fixed effects
 - Account for possibly time-varying preferences of the citizens
 - Voters' preferences indicator by Funk and Gathmann (2010)
- **Control for direct democratic elements**
 - Dummy variable for mandatory referendum on fiscal decisions
 - Variable indicating the lower limit of project costs which enforces a mandatory referendum
 - Variable representing the number of signatures required for referendum

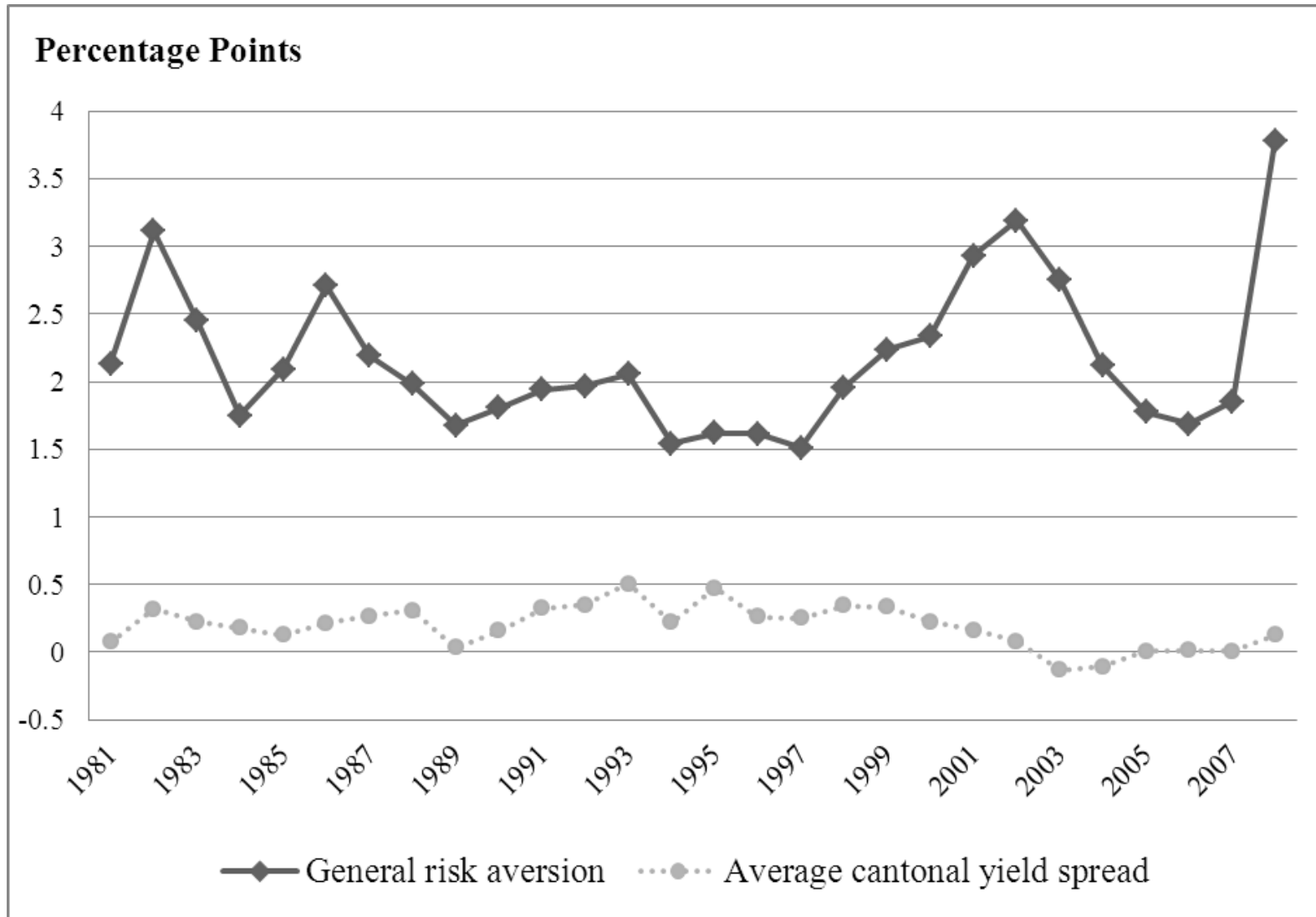
Dep. Variable: Yield Spread	(1)	(2)	(3)
Debt Canton	+**	+**	+**
Deficit Canton	+***	+***	+***
Deficit Municipalities	+**	+**	+**
Liquidity	+	-	-
Risk Aversion	+***	+***	+***
Duration	-	-	-
Fiscal-Rule-Index	-0.056** (-2.133)	-0.066** (-2.005)	-0.069** (-2.080)
No-bailout Dummy	-0.255*** (-6.817)	-0.271*** (-7.082)	-0.271*** (-7.112)
Fiscal Preferences	-0.001 (-0.634)		-0.001 (-0.607)
Mandatory Referendum		-0.225 (-0.840)	-0.211 (-0.781)
Spending Threshold		1.16e-08 (0.917)	1.11e-08 (0.868)
Signature Requirement		-1.09e-05 (-0.761)	-1.04e-05 (-0.719)
Number of Observations	7,919	7,746	7,746
R ²	0.171	0.166	0.166

Conclusion

- **The presence and strength of fiscal rules contributes to lower risk premia**
 - Strong and reliable fiscal rules have an impact
- **An unreliable no-bailout regime imposes additional costs for the potential guarantor**
 - A credible no-bailout regime reveals the true costs, a debtor has to pay for its default risk
- **However: Simple lip-services are not sufficient**
- **Strong and reliable commitments are necessary**

Appendix

Risk Aversion



Estimation Strategy

- **Yield spread $_{i,j,t}$**
 - Yield of bond i
 - in canton j
 - at time t
- **Difference of**
 - 10 year Swiss federal bonds and
 - Cantonal bonds with time to maturity of 8 to 12 years
- **Several observations for spreads in a canton at a given point of time**

Descriptive Statistics

Variable	Unit	Frequency	Obs	Mean	Std. Dev.	Min	Max
Yield Spread	Percentage points	month	7,919	0.232	0.267	-2.292	1.690
Debt Canton	Share in GDP	year	697	0.123	0.106	0.023	0.813
Deficit Canton	Share in GDP	year	698	0.001	0.009	-0.051	0.054
Deficit Municipalities	Share in GDP	year	698	0.000	0.004	-0.015	0.018
Liquidity	Issue volume in 1,000,000 units	month	7,919	0.124	0.103	0.018	0.750
Risk Aversion	Percentage points	month	324	2.111	0.534	1.290	3.820
Duration	Years	month	7,919	9.453	0.989	8	12
Dummy Fiscal Rule	Dummy variable	year	513	0.292	0.455	0	1
Fiscal-Rule-Index	Ordinale scale (3: strongest fiscal rules; 0: no fiscal rule)	year	513	0.589	1.023	0	3
No-bailout	Dummy Variable	month	324	0.167	0.270	0	1
Fiscal Preferences	Index	year	324	0.749	7.506	-19.156	35.889
Mandatory Referendum	Dummy variable	year	475	0.587	0.493	0	1
Spending Threshold	Swiss Francs	year	475	3,818,275	6,838,388	0	25,000,000
Signature Requirement	Number of signatures	year	475	4,934	3,410	1	15,000

Results

Dep. Var.: Cantonal Bond Spread	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Debt Canton	0.866*** (3.891)	0.729*** (3.363)	0.793*** (3.657)	0.760*** (3.426)	0.798*** (3.607)	0.706*** (3.217)	0.798*** (3.645)	0.449** (2.179)	0.410** (2.003)
Deficit Canton	6.128*** (5.598)	5.527*** (4.955)	5.598*** (5.047)	5.515*** (4.950)	5.596*** (5.041)	5.761*** (5.072)	5.542*** (4.863)	4.929*** (4.705)	4.944*** (4.737)
Deficit Municipalities	5.728** (2.155)	5.286** (2.104)	5.296** (2.075)	5.379** (2.135)	5.308** (2.079)	5.361** (2.142)	5.274** (2.069)	4.970** (2.074)	5.660** (2.295)
Liquidity	-0.303** (-2.040)	-0.194 (-1.491)	-0.252* (-1.876)	-0.186 (-1.439)	-0.250* (-1.867)	-0.173 (-1.337)	-0.256* (-1.913)	-0.0104 (-0.0793)	0.0410 (0.313)
Risk Aversion	0.0829*** (4.897)	0.0889*** (5.086)	0.0893*** (5.122)	0.0905*** (5.147)	0.0894*** (5.127)	0.0888*** (5.106)	0.0894*** (5.123)	0.0841*** (4.746)	0.0849*** (4.796)
Duration	-0.00756 (-1.091)	-0.00679 (-0.993)	-0.00693 (-1.018)	-0.00696 (-1.019)	-0.00694 (-1.020)	-0.00662 (-0.967)	-0.00701 (-1.029)	-0.00263 (-0.387)	-0.00286 (-0.421)
Dummy Fiscal Rule		-0.170*** (-3.997)		-0.0505 (-0.508)		-0.176*** (-4.219)			
Fiscal-Rule-Index			-0.101*** (-3.936)		-0.0906 (-1.646)		-0.0997*** (-3.804)	-0.0522** (-2.030)	-0.0534** (-2.130)
Dummy Fiscal Rule * Debt Canton				-1.033 (-1.256)					
Fiscal-Rule-Index * Debt Canton					-0.0823 (-0.198)				
Dummy Fiscal Rule * Deficit Canton						-3.034 (-0.832)			
Fiscal-Rule-Index * Deficit Canton							0.474 (0.241)		
No-bailout								-0.255*** (-6.807)	-0.277*** (-7.008)
No-bailout * Deficit Municipalities									-15.85* (-1.739)
Time Trend	0.00213 (1.090)	0.00391* (1.874)	0.00412* (1.943)	0.00370* (1.774)	0.00407* (1.915)	0.00374* (1.794)	0.00416** (1.976)	0.00646*** (3.339)	0.00607*** (3.136)
Number of Observations	7,919	7,919	7,919	7,919	7,919	7,919	7,919	7,919	7,919
R2	0.133	0.145	0.144	0.146	0.144	0.146	0.144	0.170	0.172

Results (Robustness)

Dep. Var.: Cantonal Bond Spread	(1)	(2)	(3)	(4)	(5)
Debt Canton	0.445** (2.156)	0.496** (2.314)	0.491** (2.281)	0.618*** (2.939)	0.631*** (2.997)
Deficit Canton	4.906*** (4.763)	5.039*** (4.699)	5.004*** (4.750)	1.386 (1.353)	1.049 (0.999)
Deficit Municipalities	5.129** (2.112)	4.978** (2.010)	5.120** (2.039)	-7.102*** (-5.329)	-7.587*** (-5.564)
Liquidity	0.0109 (0.0802)	-0.0377 (-0.280)	-0.0144 (-0.103)	-0.0549 (-0.385)	-0.0497 (-0.327)
Risk Aversion	0.0855*** (4.682)	0.0872*** (4.854)	0.0886*** (4.774)	0.0912*** (5.069)	0.0984*** (5.308)
Duration	-0.00289 (-0.424)	-0.00422 (-0.612)	-0.00448 (-0.648)	-0.00183 (-0.275)	-0.00375 (-0.561)
Fiscal-Rule-Index	-0.0562** (-2.133)	-0.0658** (-2.005)	-0.0691** (-2.080)	-0.0647** (-2.418)	-0.0731** (-2.207)
No-bailout	-0.255*** (-6.817)	-0.271*** (-7.082)	-0.271*** (-7.112)	-0.202*** (-4.519)	-0.216*** (-4.939)
Fiscal Preferences	-0.000735 (-0.634)		-0.000710 (-0.607)		-0.000252 (-0.248)
Mandatory Referendum		-0.225 (-0.840)	-0.211 (-0.781)		-0.164 (-0.566)
Spending Threshold		1.16e-08 (0.917)	1.11e-08 (0.868)		1.11e-08 (0.801)
Signature Requirement		-1.09e-05 (-0.761)	-1.04e-05 (-0.719)		-9.11e-06 (-0.584)
Time Trend	0.00642*** (3.323)	0.00633*** (3.017)	0.00629*** (3.004)	0.00797*** (3.774)	0.00757*** (3.319)
Number of Observations	7,919	7,746	7,746	7,919	7,746
R ²	0.171	0.166	0.166	0.172	0.171