Report on Public Finances in EMU (PFR) 2018

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European Commission, DG ECFIN

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The PFR – ECFIN flagship publication since 2001

Well-established format:

- Covers fiscal surveillance-related and analytical topics; thereby addressing different audiences
- The analytical work is potentially useful for fiscal surveillance-related purposes, but also for maintaining a fruitful dialogue with the academic community
- Coordinated by DG ECFIN/C1

This year's edition:

- More than 20 contributors from DG ECFIN and JRC Seville
- Comments by almost 40 colleagues
- Available here: https://www.ec.europa.eu/info/publications/economy-finance/report-public-finances-emu-2018_en

European Commission

Outline of the PFR 2018

I. Public finances in EMU — *follows closely DBP, COM AF 2018*

II. Recent developments in the fiscal surveillance framework — *based on notes discussed at EFC/EFC-A*

III. Conduct of fiscal policy in the face of economic shocks

IV. Fiscal outcomes in the EU in a rules-based framework – new evidence

V. Overview of public financial and non-financial assets in EU Member States

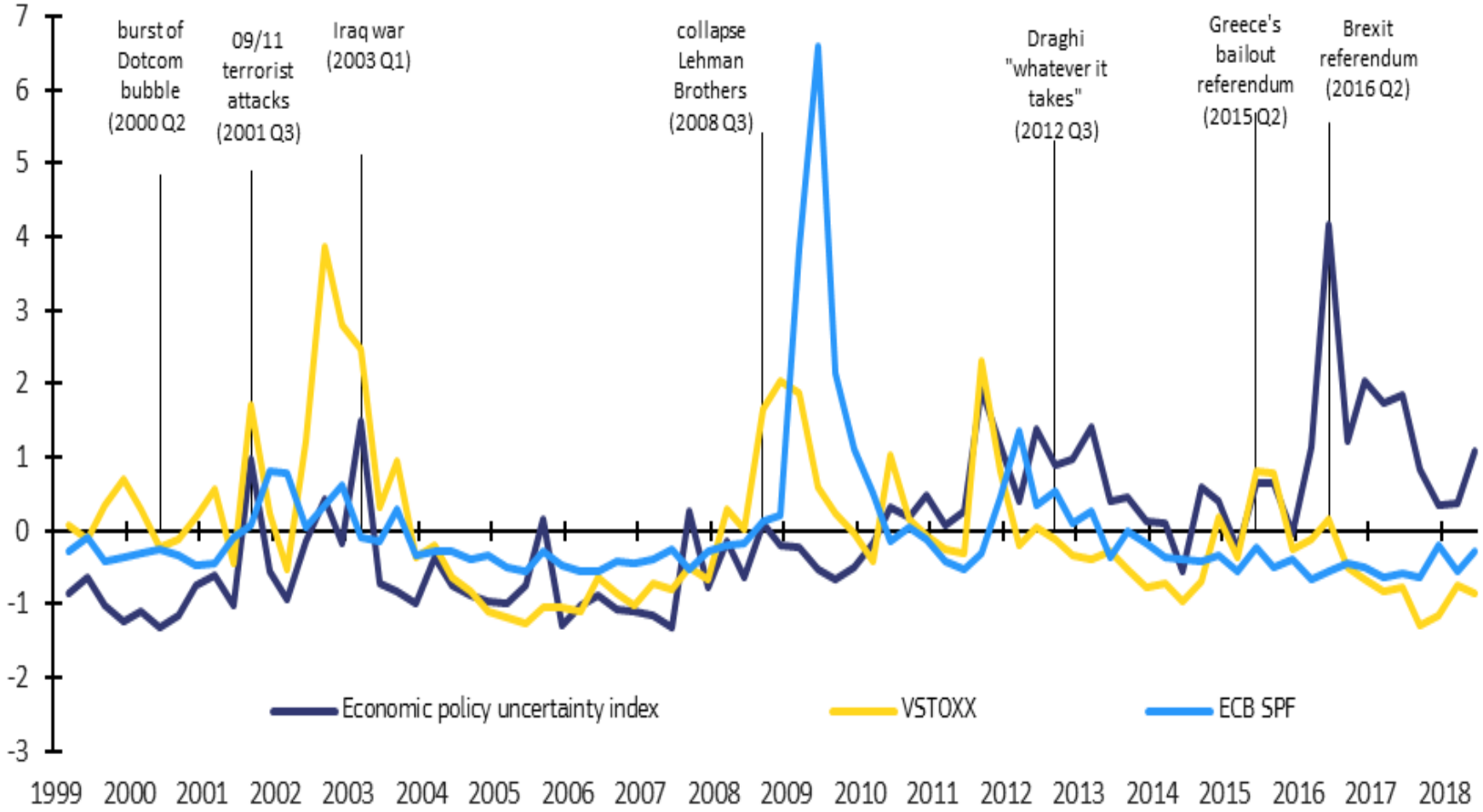
three analytical topics

Part III
Conduct of fiscal policy in the face of economic shocks

Aurélien Poissonnier (Ecfin.C1)

Joint work with P. Mohl (Ecfin.C1), W. van der Wielen (JRC)

Uncertainty is pervasive



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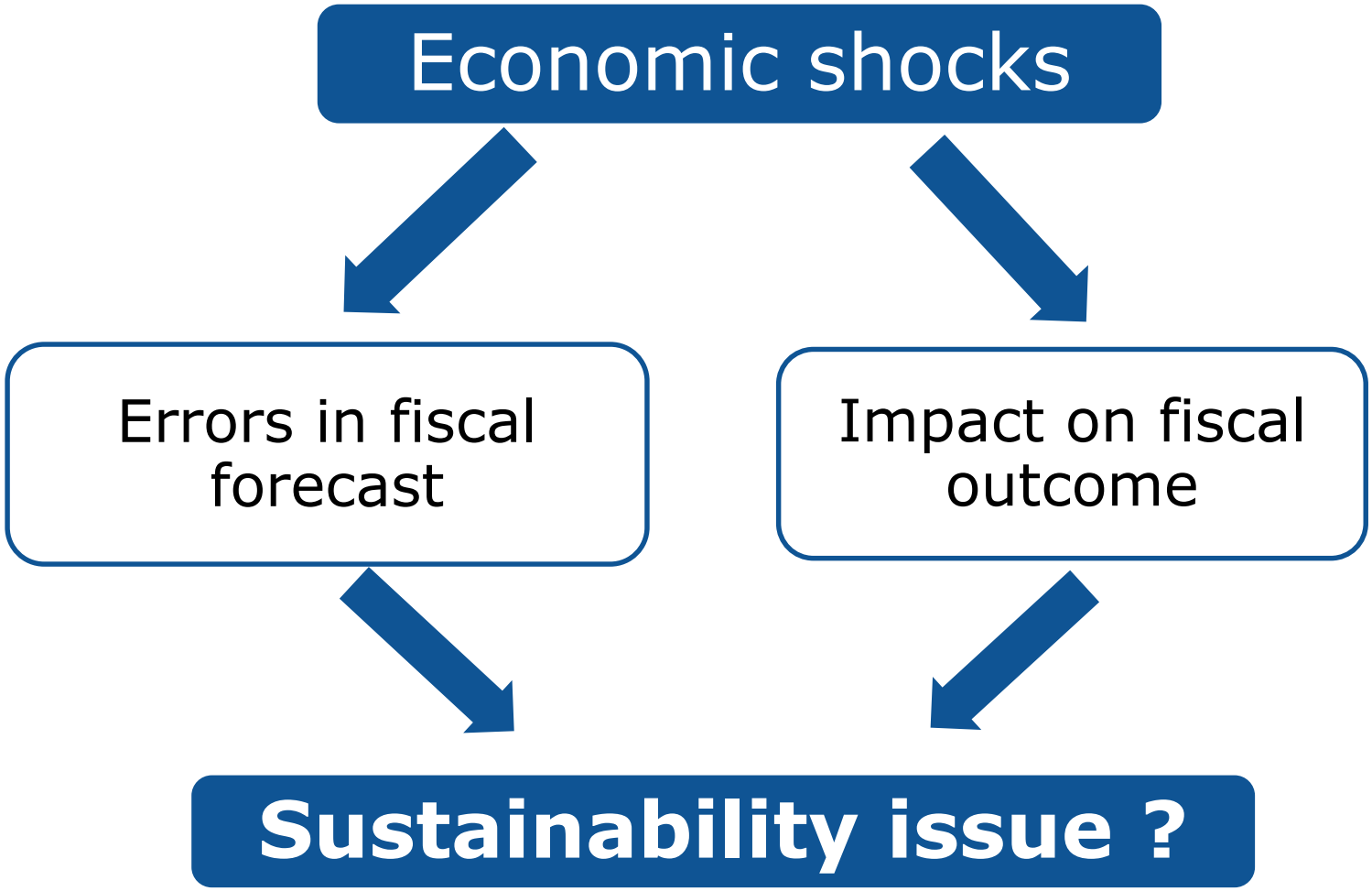
Consequences for the fiscal policy

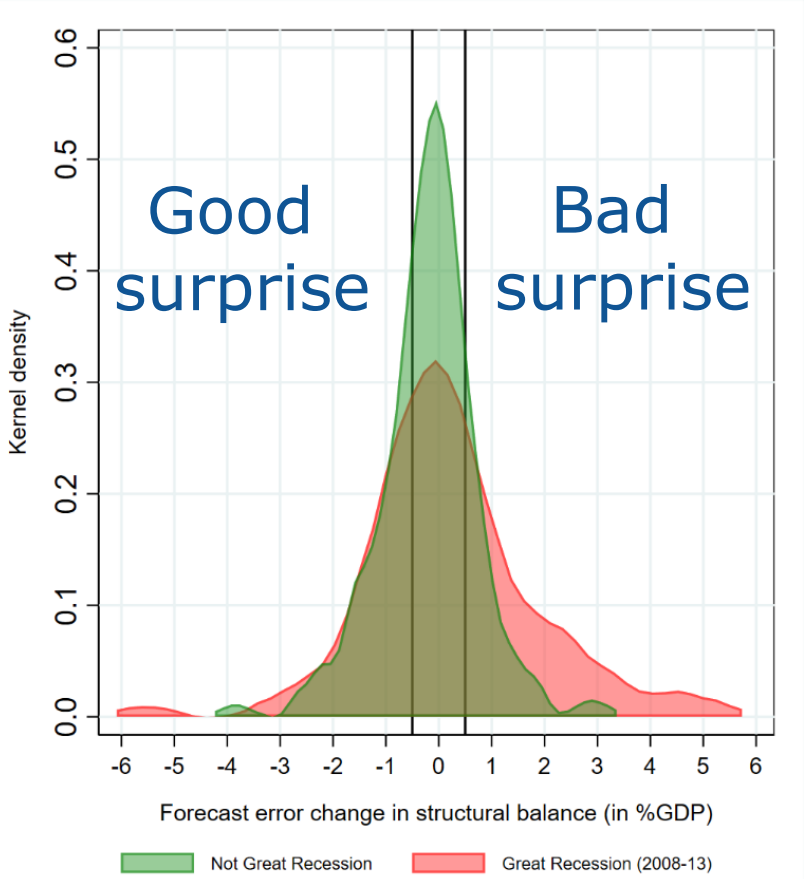


DO MEMBER STATES REACT TO UNCERTAIN OUTCOMES?

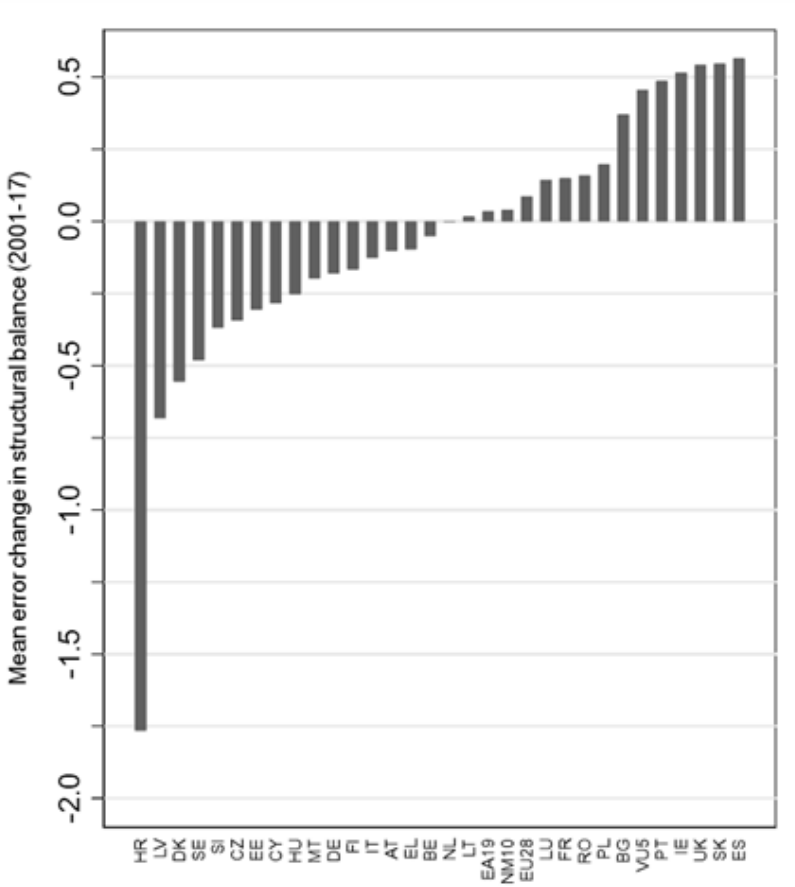
A panel estimation of the fiscal reaction to forecast errors

Fiscal effort from 2000 to 2018

Errors in budget plans are common…

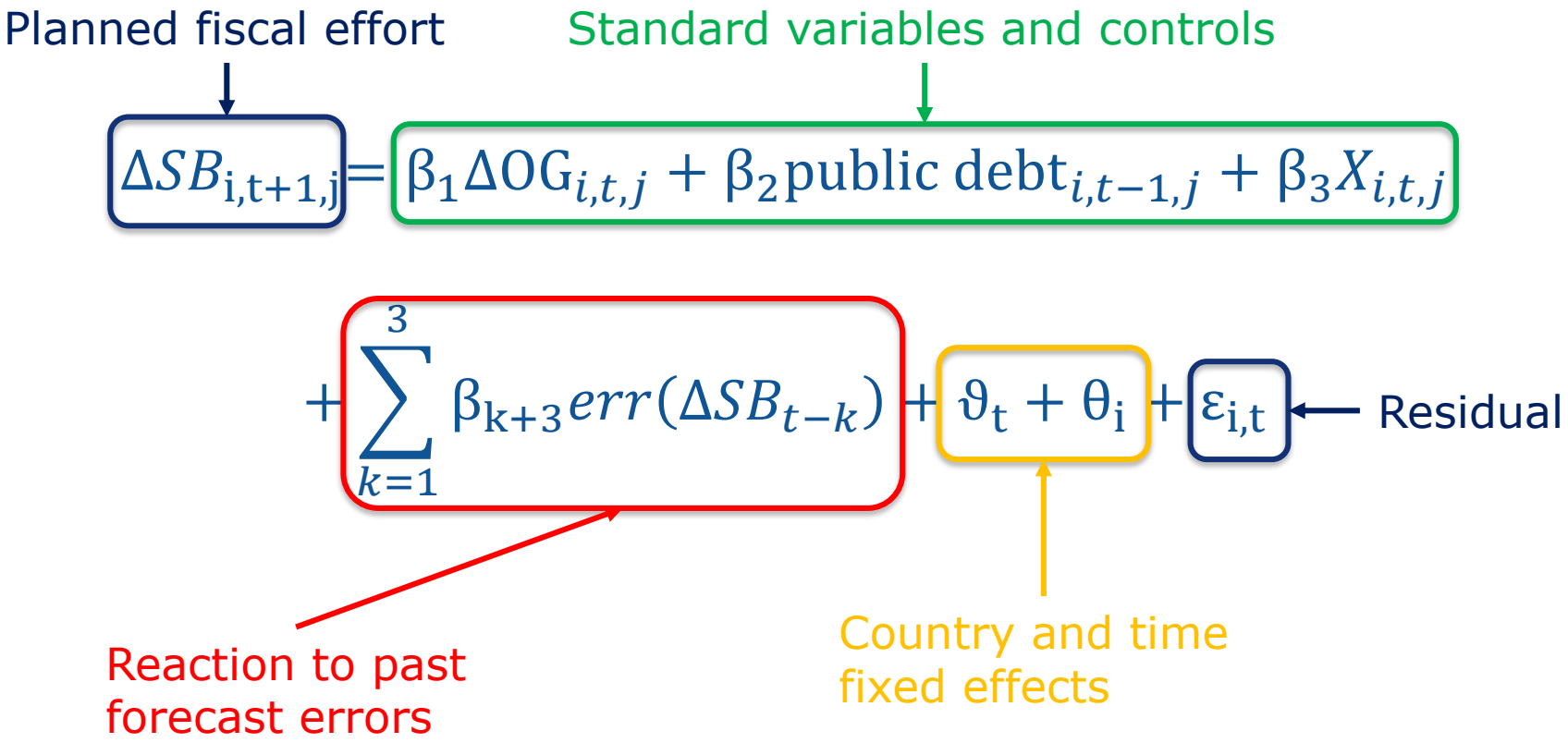


… with disparities across MS



Note: Real-time data from COM spring forecasts for one year ahead using different forecast vintages (2000-2018). EU-28 calculated based on nominal GDP weighted country- averages.

Identification strategy (a)



Estimated effect (a)

Dependent variable: structural balance	Augmented baseline model with forecast error		
Estimator	FDGMM		
	(1)	(2)	(3)
Δ Output gap (t)	-0.369***	-0.298***	-0.294***
	(-3.322)	(-3.698)	(-3.170)
Public debt (t-1)	0.005***	0.005***	0.006***
	(2.698)	(2.644)	(3.382)
Election year (t)	-0.002**	-0.002***	-0.002***
	(-2.030)	(-2.819)	(-4.025)
Crisis dummy (2008-09)	-0.602*	-0.567**	-0.511*
	(-1.777)	(-2.169)	(-1.785)
MTO overachievement (t)	-0.292***	-0.296***	-0.245**
	(-4.253)	(-4.215)	(-2.509)
EDP (t)	0.259***	0.296***	0.347***
	(2.740)	(3.238)	(3.665)
Forecast error ΔSB (t-1)	0.103	0.126	0.088
	(1.379)	(1.226)	(1.595)
Forecast error ΔSB (t-2)		0.065	0.139
		(0.883)	(0.525)
Forecast error ΔSB (t-3)			0.2
			(0.949)
# observations	399	371	343
Forecast error ΔSB (size)	0.10	0.19	0.43
Forecast error ΔSB (p-value)	0.17	0.38	0.60
AR(1) (p-value)	0.00	0.00	0.00
AR(2) (p-value)	0.32	0.08	0.39
Hansen (p-value)	0.66	0.83	0.95
# instruments	25	26	27

← pro-cyclical if < 0

Controls in line With literature

← Significant effect of EU surveillance

← **not significant**

Note: Dependent variable: Expected change in structural balance. Positive (negative) coefficients point to a fiscal tightening (loosening).

Identification strategy (b)

Planned fiscal effort

Standard variables and controls

$$\Delta SB_{i,t+1,j} = \beta_1 \Delta OG_{i,t,j} + \beta_2 \text{public debt}_{i,t-1,j} + \beta_3 X_{i,t,j}$$

$$+ \beta_4 err(\Delta SB_{i,t-1,j}) + \beta_5 D_{i,t,j} + \beta_6 err(\Delta SB_{i,t-1,j}) * D_{i,t,j}$$

$$+ \vartheta_t + \theta_i + \varepsilon_{i,t}$$ ← Residual

Reaction to past forecast errors + dummy for sign, size or persistence

Country and time fixed effects

Estimated effect (b)

Negative surprises			Marginal effect		# obs.
			Size	p-value	
Sign	Neg. surprise	No impact	0.06	0.51	226
Size	Large surprise	No impact	0.03	0.70	155
	Very large surprise	No impact	0.00	0.69	112
Persistence	Repeated neg. surprise	No impact	0.15	0.21	100
	Repeated large surprise	No impact	0.16	0.13	45
	Repeated very large neg. surprise				
	• 2 years in a row	No impact	0.19	0.50	43
	• 2 out of 3 years	No impact	0.17	0.14	108
	• 3 years in a row	**Fiscal tightening**	0.23**	0.05	21

Positive surprises			Marginal effect		# obs.
			Size	p-value	
Sign	Pos. surprise	No impact	-0.06	0.59	173
Size	Large surprise	No impact	-0.03	0.82	118
	Very large surprise	No impact	-0.24	0.25	75
Persistence	Repeated pos. surprise	**fiscal loosening**	-0.63***	0.00	32
	Repeated large surprise		-0.54***	0.01	8
	Repeated very large pos. surprise				
	• 2 years in a row		-0.22**	0.04	19
	• 2 out of 3 years	**fiscal loosening**	-0.15***	0.00	44
	• 3 years in a row		-0.21*	0.10	1

HOW DO ECONOMIC SHOCKS AFFECT FISCAL OUTCOMES?

A panel VAR estimation of the effect of economic shocks on fiscal outcomes

Motivation

- Large literature analyses the impact of fiscal policy on macro variables
  (Blanchard Perotti, 2002; Romer and Romer, 2009, 2010; Mertens and Ravn, 2010 ,2012…)
- Hardly any evidence on the impact of macro on fiscal variables

→ Here: How sizeable is the impact of economic (supply, demand, financial) shocks on fiscal outcomes?

Methodology

- *Panel of EU-28 MS*
- *Quarterly data since early 2000/mid nineties*
- *VAR model* $X_t^c = [\Delta y_t^c, \Delta \pi_t^c, \Delta i_t^c, \Delta g_t^c, \Delta t_t^c]'$
  - **real GDP growth**
  - **inflation**
  - **effective interest rate on sovereign debt**
  - **public (primary) expenditure**
  - **public revenue**

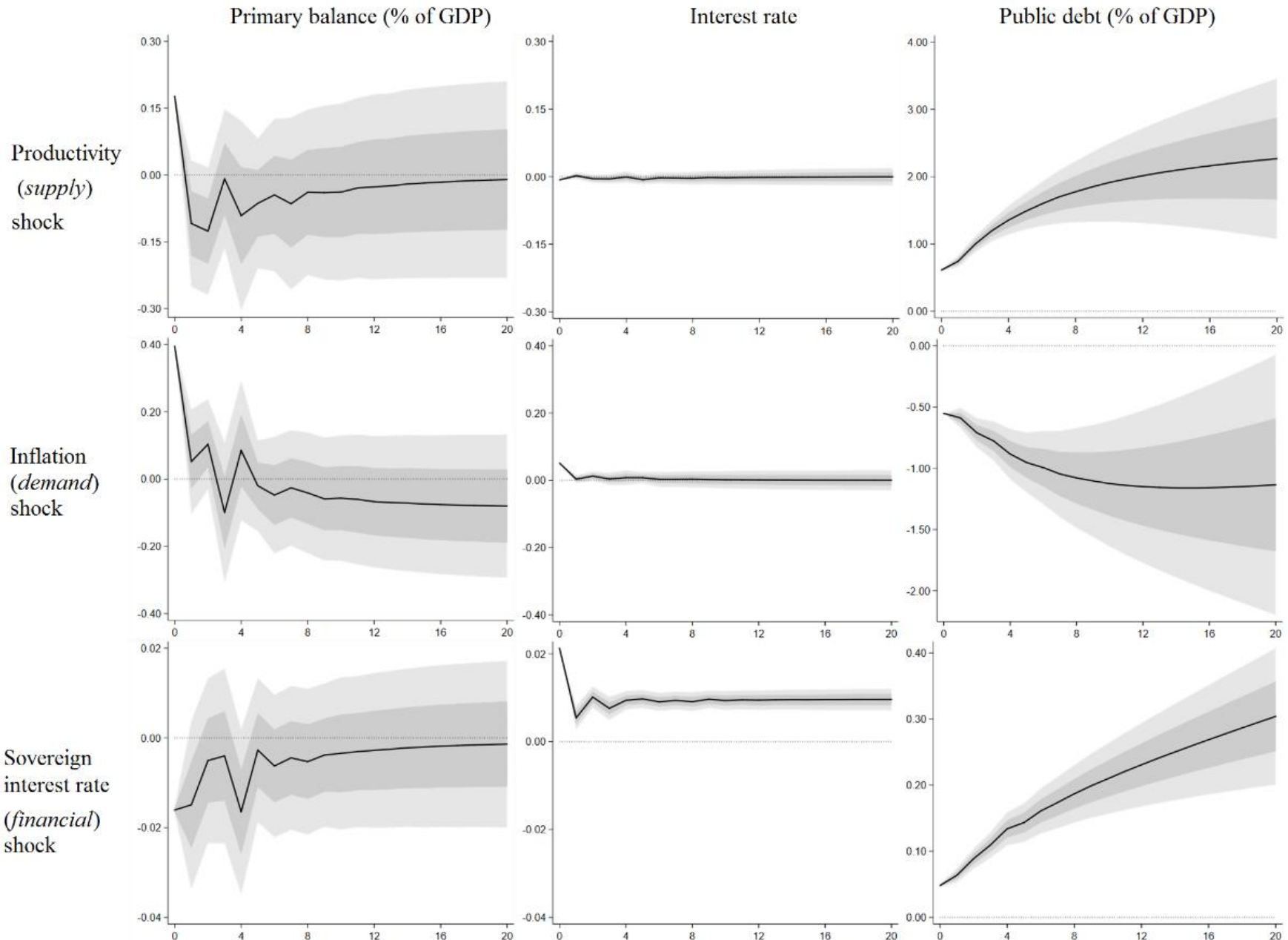
Shock identification

Outcome / Shock	GDP	Inflation	Effective interest rate	Primary exp.	Revenue
Productivity			No LT effect	Same LT effect as on GDP	Same LT effect as on GDP
Inflation	No LT effect		No LT effect	Calibrated ST elasticity	Calibrated ST elasticity
Effective interest rate				Calibrated ST elasticity	Calibrated ST elasticity
Primary expenditure					
Revenue				No effect within the same quarter	

5 shocks

- **productivity (supply)**
- **inflation (demand)**
- **sovereign interest rate shocks (financial)**
- **public revenue**
- **primary expenditure**

Effect on public debt stock



Conclusion

- *MS do not factor in past errors in fiscal forecast unless:*
  - **Negative very large and repeated -> tightening**
  - **Positive and repeated -> loosening**
- *Macro shocks can have a significant and lasting impact on fiscal positions in the EU (particularly debt/GDP)*

Part IV
Fiscal outcomes in the EU in a rules-based framework new evidence

Édouard Turkisch (Ecfin.C1)

Joint work with E. Reitano, A. Cepparulo, S. Pamies, F. Orlandi, P. Mohl and C. Belu Manescu

IV. Fiscal outcomes in the EU in a rules-based framework – new evidence

Three questions

Have fiscal rules in the EU …

1. Contributed to sustainability of public finances?
2. Mitigated procyclicality?
3. Strengthened national ownership?

→ Evidence-based, backward-looking analysis

Outline

Have fiscal rules in the EU …

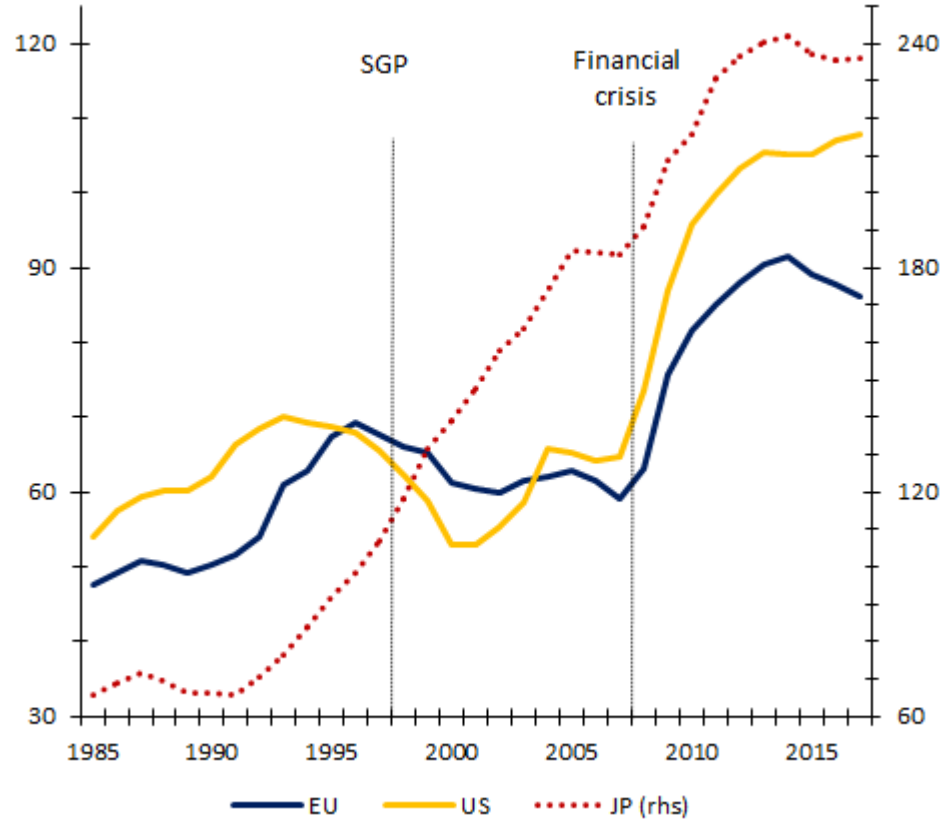
1. **Contributed to sustainability of public finances?**

2. **Mitigated procyclicality?**

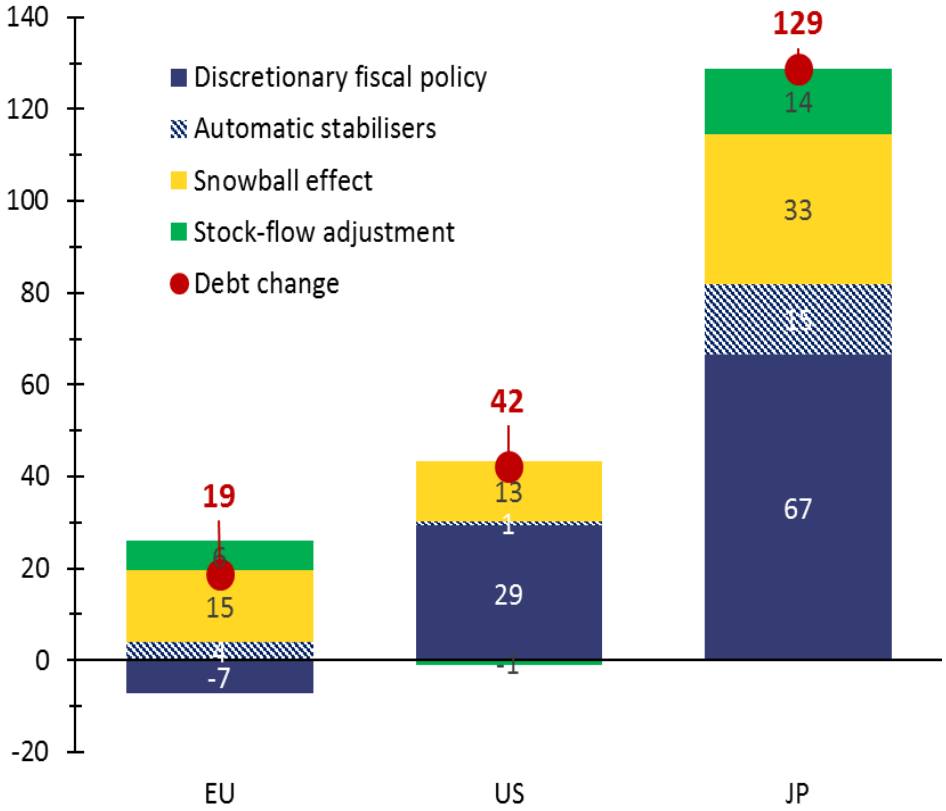
3. **Strengthened national ownership?**

Public debt ratios increased much less in the EU than in the US and Japan

Public debt developments in EU, US and Japan since 1985 (% GDP)

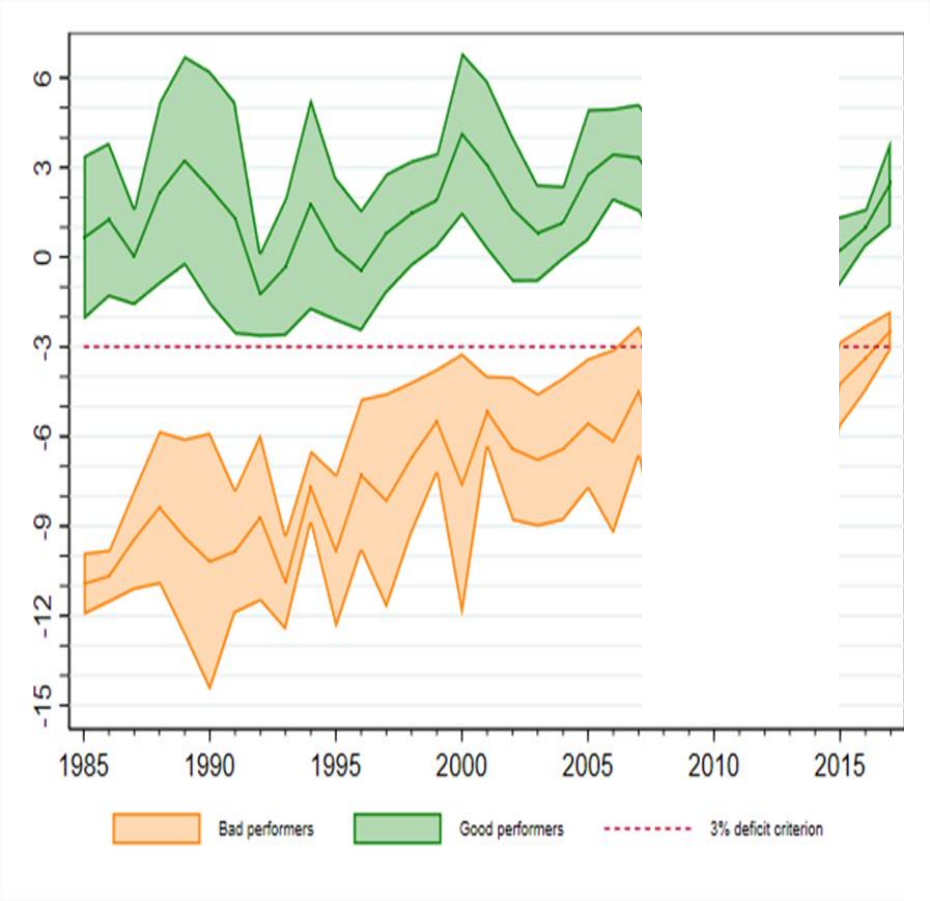


Key contributions to change in debt (1998-2017, in pps. of GDP)

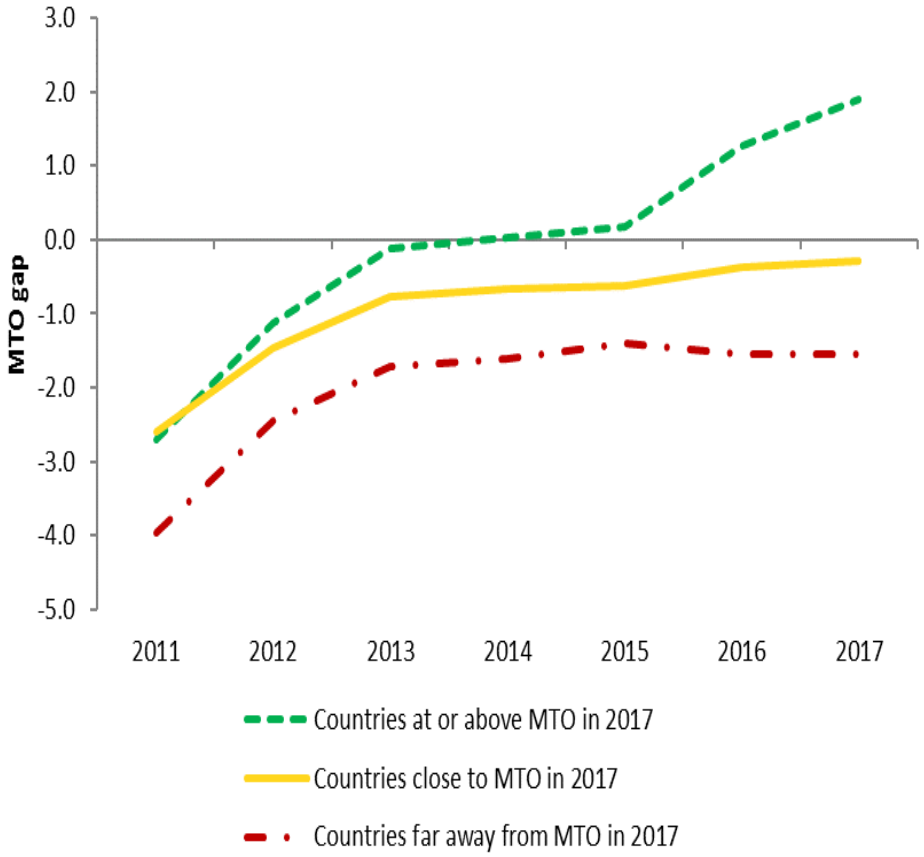


Significant improvements in fiscal positions; 3% deficit became a target for some MS

Headline balances in EU Member States (% GDP)

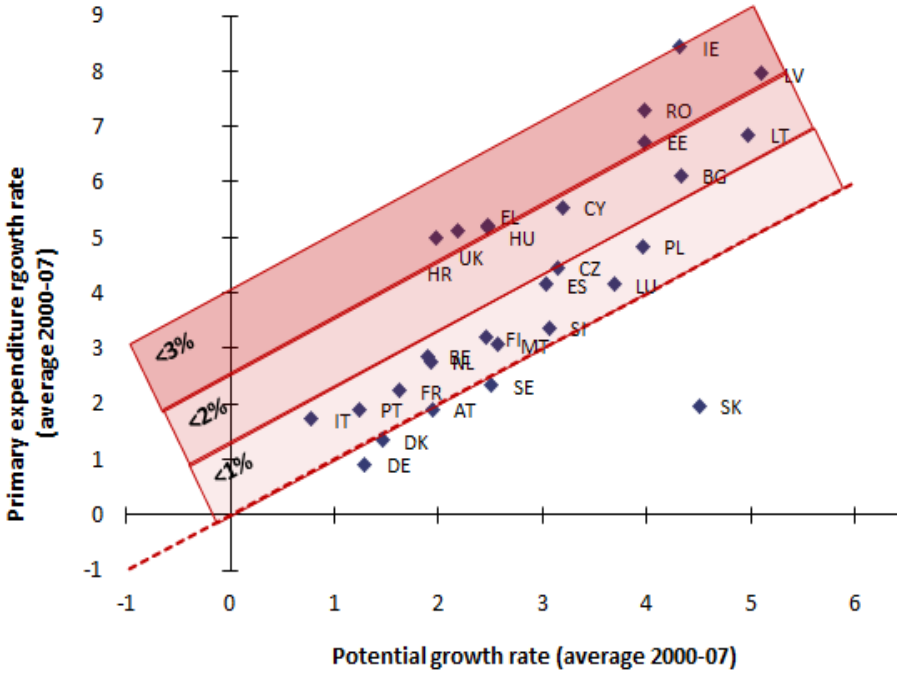


Distance between the structural balance and the MTO (in pps.)

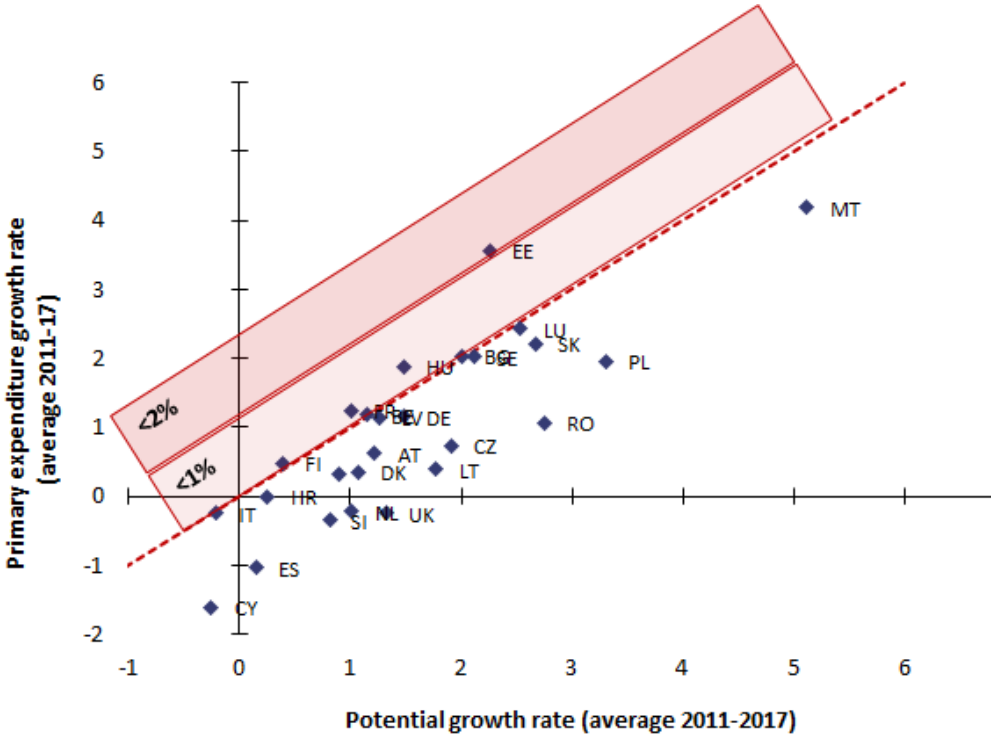


Expenditure dynamics under better control since Great Recession

Pre-Great Recession

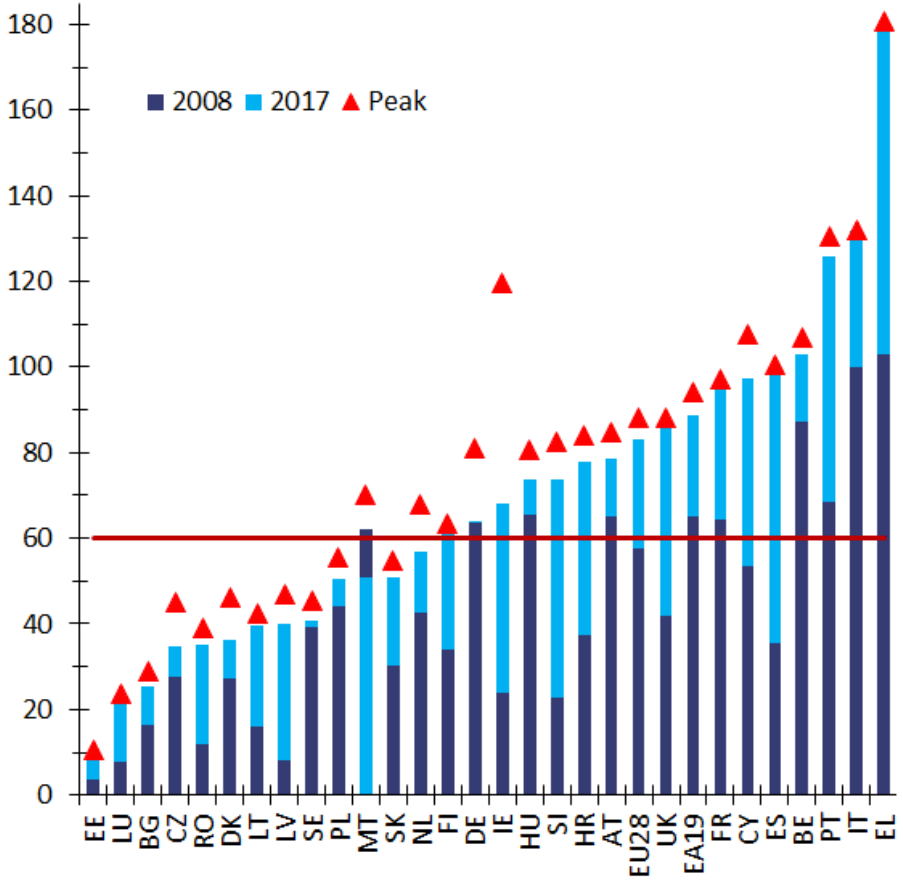


Post-Great Recession

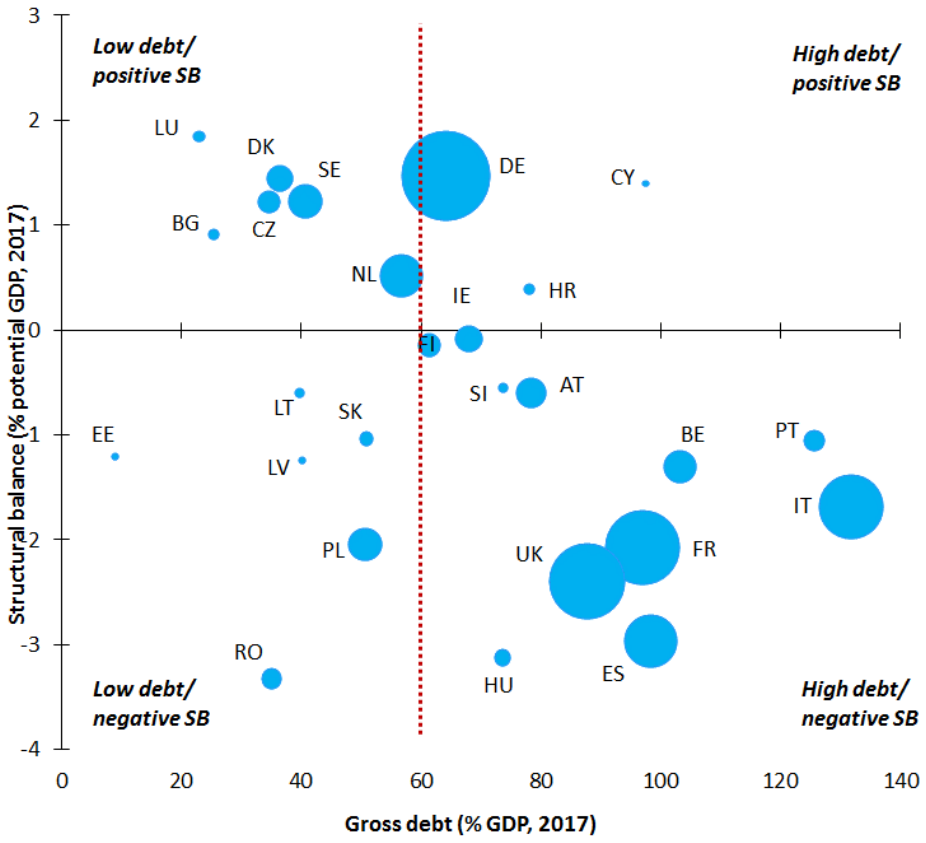


Still, public debt ratios remain close to peaks and fiscal buffers are limited

Public debt-to-GDP ratios since 2008
(% GDP)



Debt ratios and structural balances, weighted by country size



Outline

Have fiscal rules in the EU …

1. Contributed to sustainability of public finances?

2. **Mitigated procyclicality?**

3. Strengthened national ownership?

How to assess the cyclicality of the fiscal effort?

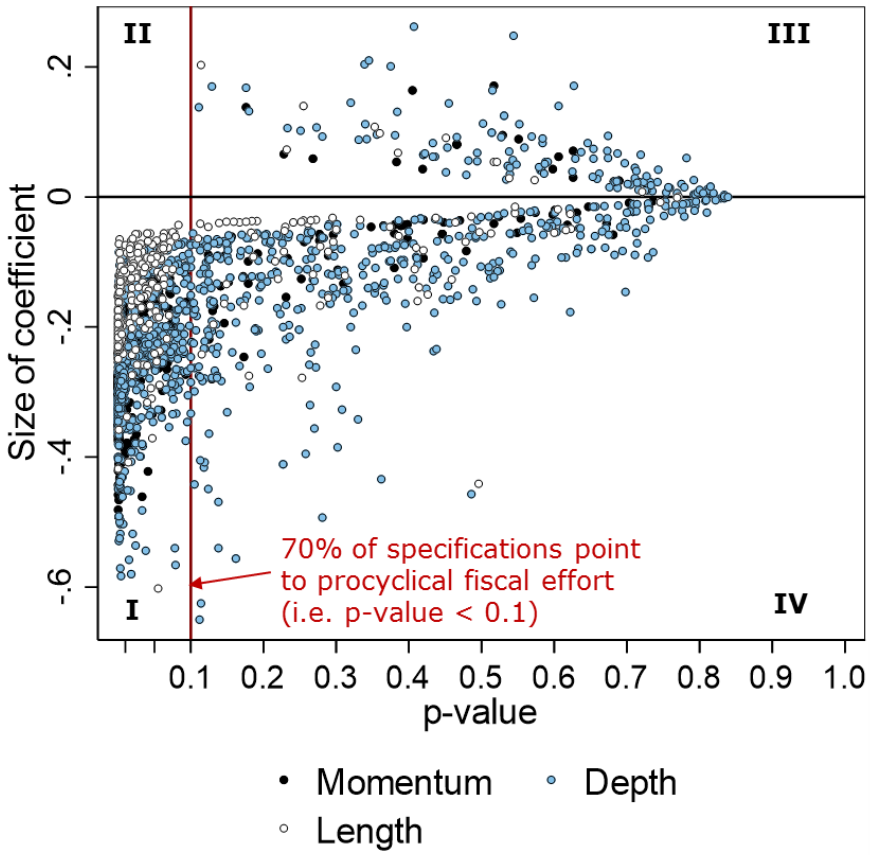
- Measures of economic cycle
- Measures of fiscal effort
- Large number of robustness tests

Fiscal effort appears procyclical

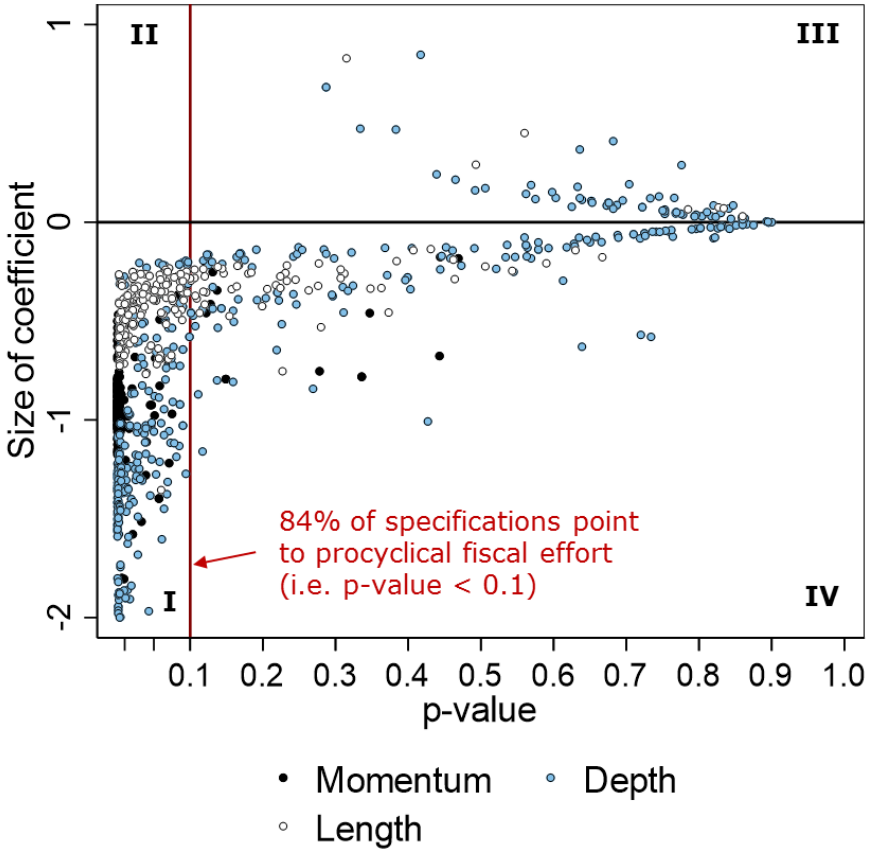
	pro-cyclical if ΔOG < 0				pro-cyclical if ΔOG > 0			
Dataset: Real-time AF	Dependent variable: Δ Structural prim. Balance				Dependent variable: EB-based fiscal effort			
Estimator	SYS-GMM	SYS-GMM	SYS-GMM	SYS-GMM	SYS-GMM	SYS-GMM	SYS-GMM	SYS-GMM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependant variable (t-1)	0.128*	0.08	0.079	0.074	0.288**	0.307**	0.309**	0.261*
	(1.758)	(1.226)	(1.158)	(1.135)	(1.978)	(2.357)	(2.355)	(1.890)
Δ Output gap (t)	-0.321***	-0.370***	-0.371***	-0.369***	0.754***	0.892***	0.869***	0.791**
	(-3.756)	(-5.190)	(-5.093)	(-4.730)	(2.765)	(2.908)	(2.847)	(2.166)
Public debt (t-1)	0.006***	0.011***	0.011***	0.011***	-0.019**	-0.036***	-0.036***	-0.045***
	(3.529)	(3.804)	(3.209)	(2.897)	(-2.485)	(-2.874)	(-2.754)	(-3.530)
Current account (t-1)		0.108***	0.114***	0.112***		-0.198	-0.198	-0.087*
		(3.315)	(3.508)	(3.487)		(-1.265)	(-1.252)	(-1.973)
Age dependency ratio (t-1)		-0.074***	-0.076**	-0.103**		0.244*	0.249*	0.211**
		(-3.332)	(-2.440)	(-2.584)		(1.664)	(1.702)	(2.139)
Election year (t-1)			-0.003**	-0.003**			0.011**	0.014***
			(-2.106)	(-1.974)			(2.436)	(3.388)
Crisis dummy 2008-09				-1.584**				1.396*
				(-2.102)				(1.948)
# observations	437	427	427	427	347	340	340	340
# countries	28	28	28	28	27	27	27	27
R-squared								
Wald test time/country dummies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AR(1) (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AR(2) (p-value)	0.31	0.22	0.28	0.29	0.84	0.84	0.83	0.90
Hansen (p-value)	0.29	0.83	0.78	0.77	0.52	0.58	0.57	0.68
# instruments	25	29	30	30	22	26	27	28

Sensitivity analysis: confirms findings on procylicality

A. Top-down measures of fiscal effort

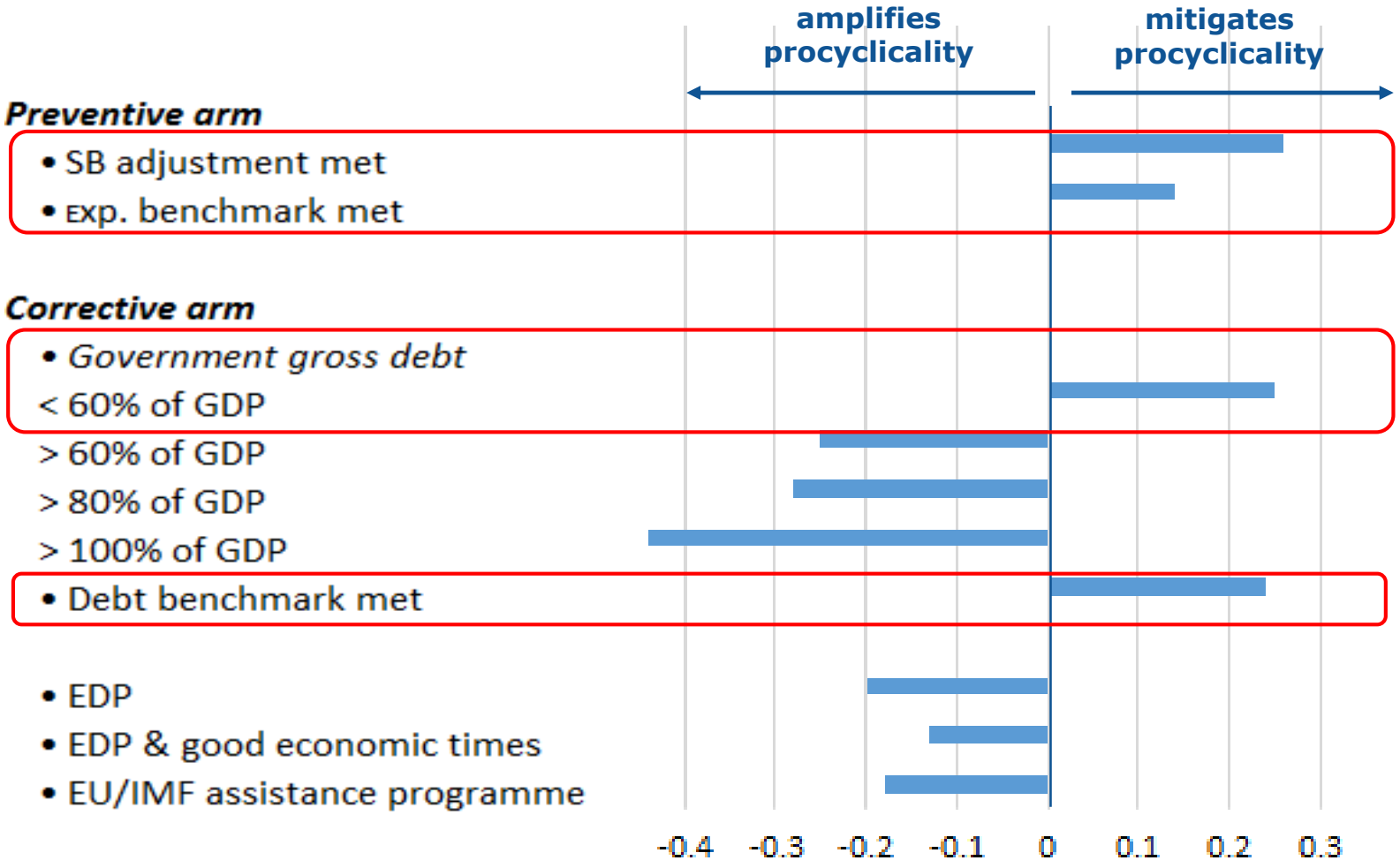


B. Bottom-up measures of fiscal effort



Note: Evidence points to a procyclical (quadrant I), countercyclical (quadrant II) and acyclical (quadrant III and IV) fiscal effort. To allow for a better comparability between top-down and bottom-up measures, the coefficients of the bottom-up measures are shown with a reversed sign.

"Complying with" fiscal rules mitigates procyclicality



Note: Specification: $effort_{i,t} = \beta_1\ effort_{i,t-1} + \beta_2\ cycle_{i,t} + \beta_3\ debt_{i,t-1} + \beta_4 X_{i,t-1} + \beta_5\ dummy_{i,t} \cdot cycle_{i,t} + \beta_6\ dummy_{i,t} + \theta_t + \vartheta_i + u_{i,t}$
The graph shows the size of the interaction coefficients, which are significant at the 10% level. The findings are based on the same sample and estimations techniques as described in the table above.

Outline

Have fiscal rules in the EU …

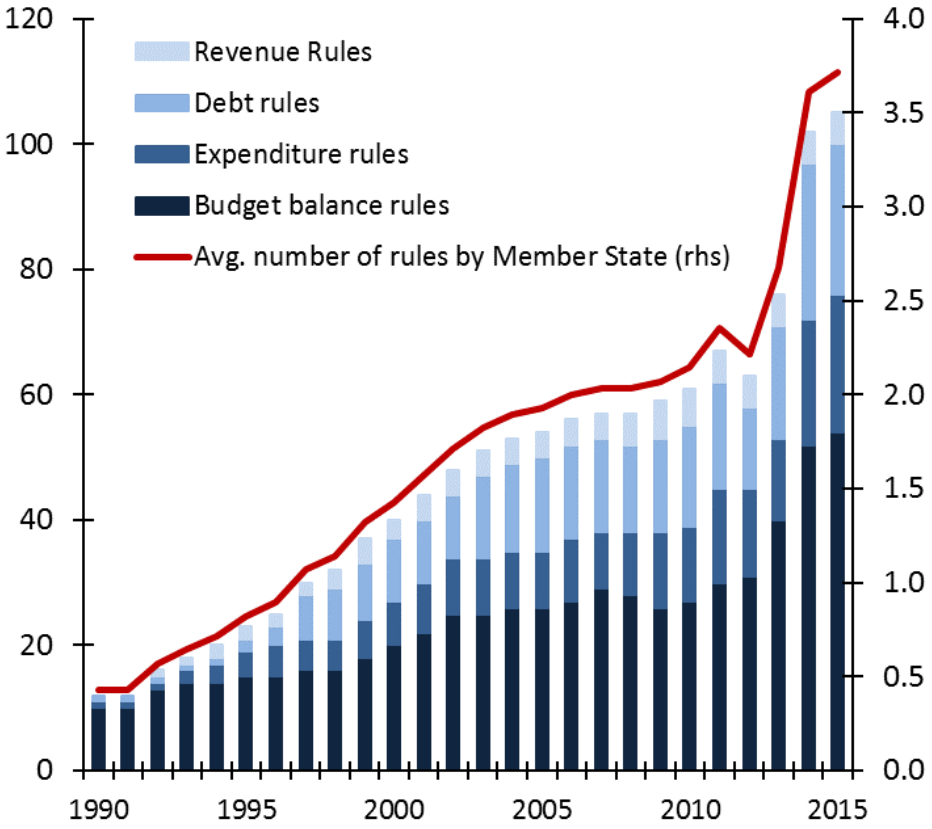
1. Contributed to sustainability of public finances?

2. Mitigated procyclicality?

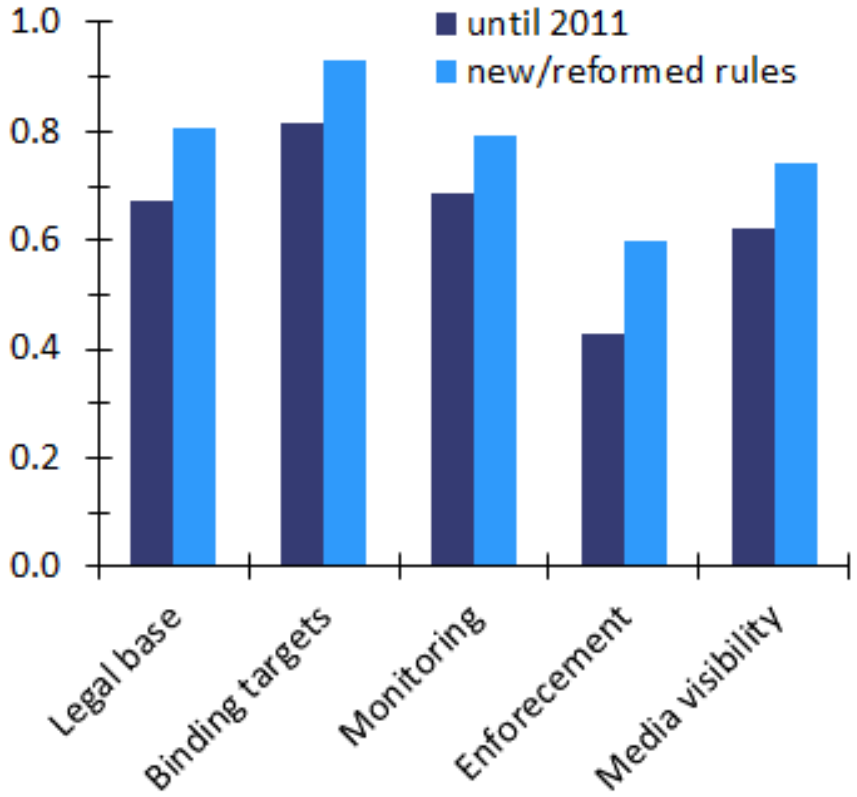
3. Strengthened national ownership?

Number of national fiscal rules increased and they became stronger

Number of national fiscal rules in the EU28



Features of new/reformed rules



Source: 2015 vintage of Commission's Fiscal Governance Database (FGD).

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National fiscal rules fostered sound fiscal policy

Impact of national fiscal rules

Estimator	LSDV[a] (1)	LSDV-C[b] (2)	IV[c] (3)
CAPB (t-1)	0.54***	0.61***	0.61***
	(15.79)	(17.02)	(7.41)
Output gap (t-1)	-0.1**	-0.1**	-0.1*
	(-2.32)	(-2.60)	(-1.85)
Public debt (t-1)	0.03***	0.03***	0.03***
	(5.10)	(4.22)	(4.98)
Fiscal Rule Index	0.25*	0.23*	0.35*
	(1.8)	(1.73)	(1.86)
# obs.	577	577	575
R^2 ('within' for fixed-effects estimator)	0.51	-	0.66
Number of countries	28	28	28
F-test country fixed effects	2.2***	-	53.20***
Fraction of variance due to country fixed effects	0.2	-	-
F- test time fixed effects	3.6***	119.85***	89.33***

Impact of MTBF

Estimator	LSDV[a] (1)	LSDV-C[b] (2)	IV[c] (3)
CAPB (t-1)	0.35***	0.46***	0.44***
	(6.46)	(6.85)	(4.12)
Output gap (t-1)	-0.20***	-0.20***	-0.19**
	(-3.00)	(-3.52)	(-2.61)
Public debt (t-1)	0.05***	0.05***	0.05***
	(3.42)	(3.20)	(3.29)
MTBF Index	1.17***	1.05***	1.05***
	(4.39)	(3.64)	(3.91)
# obs.	273	273	273
R^2 ('within' for fixed-effects estimator)	0.48	-	0.64
Number of countries	28	28	28
F-test country fixed effects	3.08***	-	62.61***
F- test time fixed effects	3.75***	41.77***	34.09***

Note: Dependent variable: CAPB. Constants and dummy variables are not reported. Sample period 1990-2015.

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Main take-aways

Main Objective	Key findings
Strengthen sustainability	• Over the last 2/3 decades, public debt increased much less in the EU compared with most advanced economics (EU had on average a primary surplus) • Significant improvements in Member States with most fragile fiscal positions • But, debt is very high and fiscal buffers small in some Member States
Foster stabilisation	• Fiscal adjustment effort appears procyclical in the EU • Discretionary fiscal policy tends to be most procyclical in good times • Respect of fiscal rules can mitigate procyclicality
Promote national ownership	• National fiscal rules became more numerous and stronger • Effective national / medium-term fiscal frameworks promote sound fiscal positions

Thank you

PFR available online on Commission homepage:

https://ec.europa.eu/info/publications/economy-finance/report-public-finances-emu-2018_en

Comments on the report would be gratefully received and should be sent, by mail or e-mail to: gilles.mourre@ec.europa.eu

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BACKGROUND SLIDES

III.2 HOW DOES THE EU FISCAL GOVERNANCE FRAMEWORK DEAL WITH UNCERTAINTY?

An overview of the SGP specific provisions

The EU fiscal framework: robust to uncertainty?

Two main sources of uncertainty in fiscal surveillance

- Data revisions (incl. forecast errors)
- Estimation of unobserved components (e.g. output gap, structural balance)

Asymmetric treatment -> if ex-post is worse than expected, avoid penalising a MS

The EU fiscal framework: robust to uncertainty?

Preventive arm

- Broad compliance margins
- OG plausibility tool
- Freezing principle
- Unusual event clause
- General escape clause

Corrective arm

- No EDP if « small and temporary » or « exceptional »
- Unusual event clause
- General escape clause

III.3 Estimation approach

Key question:

Do Member States react to unexpected fiscal outcomes (learning effect)?

Step 1
Baseline specification:

Identify key explanatory variables using a fiscal reaction function approach

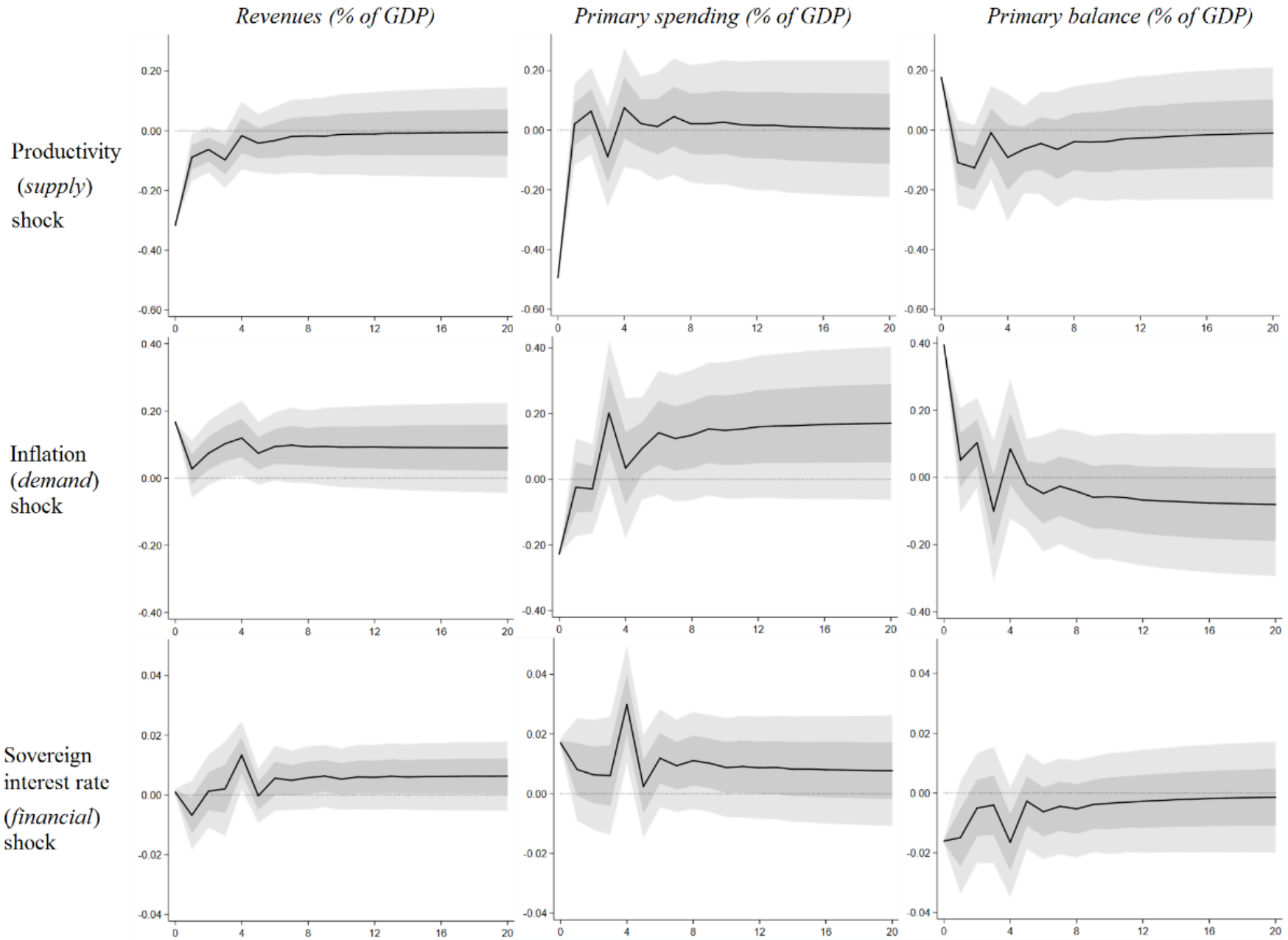
Step 2
Rough test of learning effect:

Augment baseline model with fiscal forecast error

Step 3
Refined test of learning effect:

Assess different forecast characteristics (sign, size, persistence)

III.4 Effect on fiscal flows



Background slides (part IV)

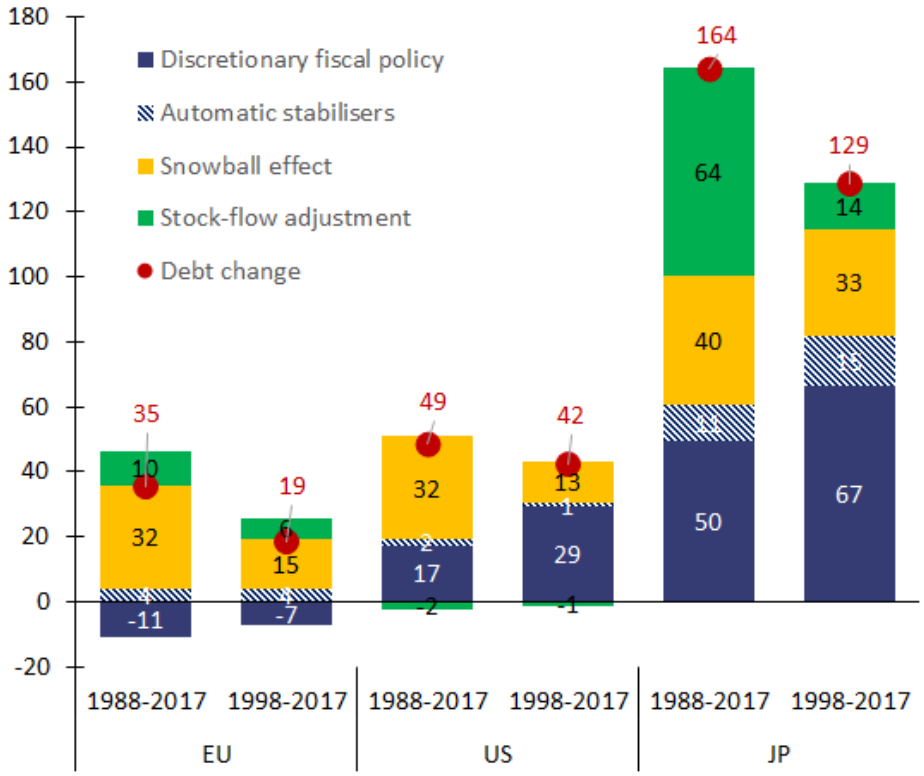
Key changes of fiscal governance framework since 2011

Main objective	Key measures to achieve the objective
Strengthen sustainability	• Introduction of expenditure rule, debt benchmark (*6P*) • Possibility of imposing earlier/ more gradual sanctions (*6P*) • Surveillance of Draft Budgetary Plans (*2P*)
Foster stabilisation	• Introduction of "general escape clause" (*6P*) • Stronger focus on euro area fiscal policy stance (*2P*) • Introduction of flexibility for cyclical conditions (*)
Promote national ownership	• Mandatory min. requirements for national fiscal frameworks (*6P*) • Introduction of balanced budget rule at the national level (*FC*) • Monitoring of all national numerical fiscal rules by IFIs (*2P*)

Note: Key institutional reform steps are shown in italics in brackets, namely six-pack (6P), Fiscal Compact (FC) as part of the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union, the two-pack (2P) and commonly agreed position on flexibility in the Stability and Growth Pact, see Council of the European Union (2015) and European Commission (2015) (*).

Public debt ratios have increased much less in the EU than in the US and Japan

Key contributions to change in debt (in pps. of GDP)



Debt developments across Member States (in pps. of GDP)

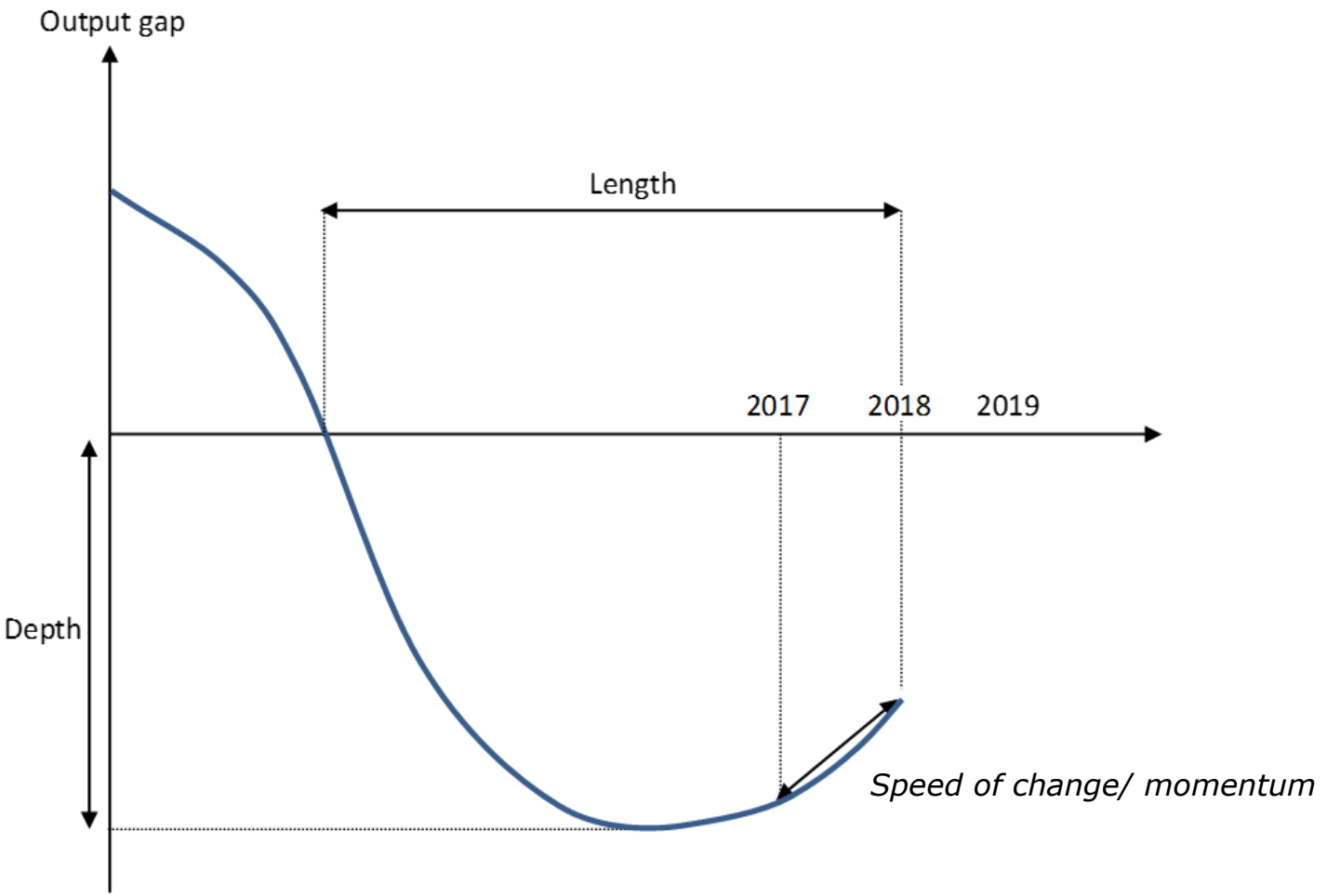
	1988-2017				
	DE	FR	IT	UK	ES
Delta gross debt	27.0	63.0	46.0	45.6	54.5
Drivers					
+ Primary balance	-19.3	27.0	-53.8	30.0	21.4
+ Snowball effect	24.6	27.1	81.9	13.1	40.3
+ SFA	21.6	8.9	17.9	2.5	-7.3

	1998-2017				
	DE	FR	IT	UK	ES
Delta gross debt	5.4	35.4	18.0	44.1	33.9
Drivers					
+ Primary balance	-20.4	18.6	-38.5	27.1	20.7
+ Snowball effect	14.4	12.9	51.3	7.1	5.8
+ SFA	11.5	3.8	5.2	9.9	7.4

Challenge 1: How to measure the fiscal effort?

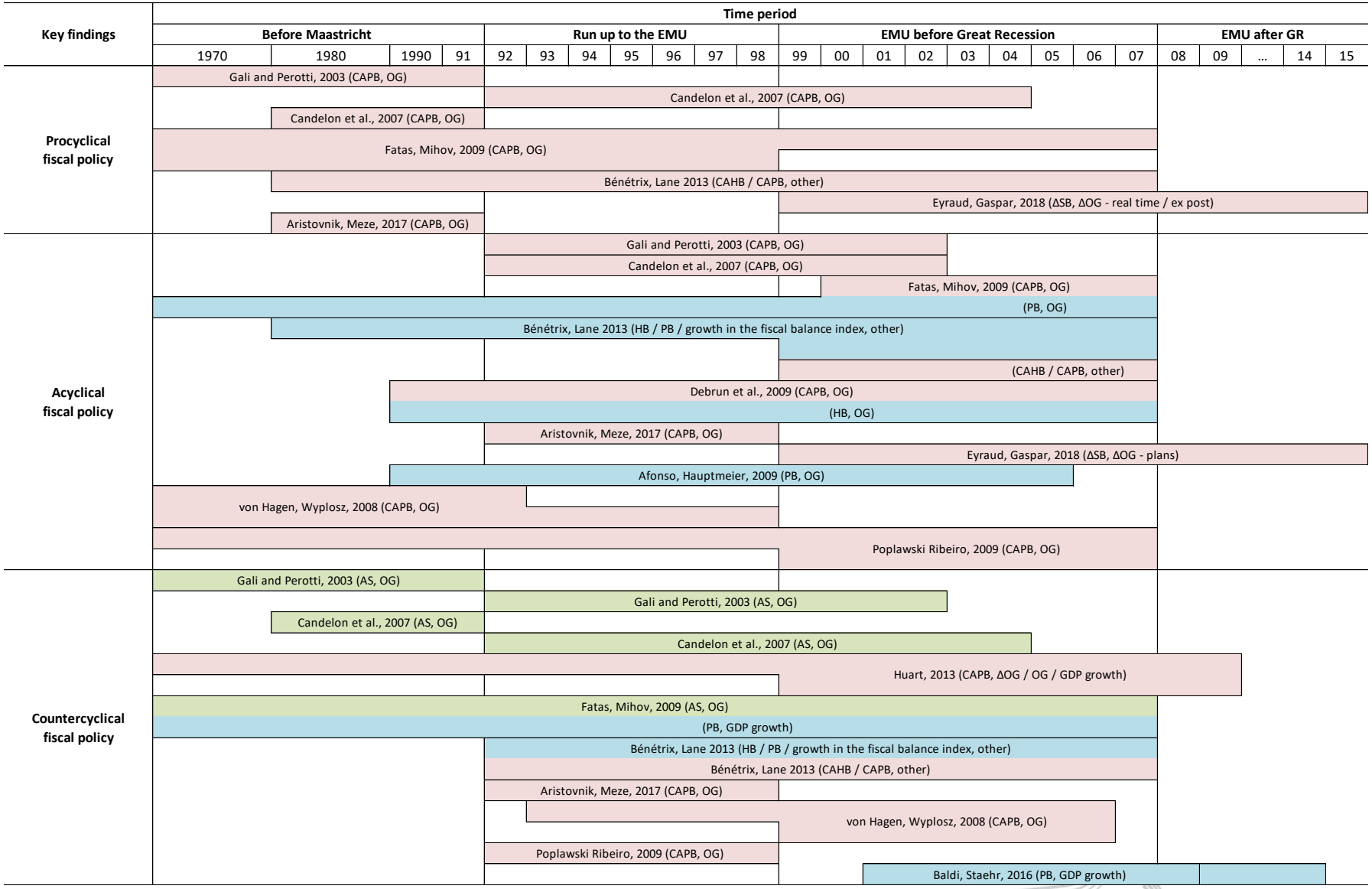
	"Top-down" measure	"Bottom-up" measure
Key SGP indicator	• Structural balance	• Expenditure benchmark
Basic idea	• Use the change of the govt. budget balance, which is under the control of policymakers	• Compare expenditure growth with an appropriate benchmark
Pros	• Well-established and widely-known • Used in the SGP	• More direct assessment of fiscal effort • Used in the SGP
Cons	• Large fluctuations of tax revenues and unemp. spending w.r.t. output gap • Benchmark neutral stance (potential output) unobservable	• Measurement challenging, data availability limited • Benchmark neutral stance (av. potential output gr.) unobservable
Reference	Alesina and Perotti (1995)	Romer and Romer (2010), Carnot and de Castro (2015)

Challenge 2: How to measure the economic cycle?



Note: Graph closely follows European Commission (2016), p.126.

Pro/counter-cyclicality: a literature review



Note: Cells highlighted in blue/red/green show the focus of the study, namely concentrating on total fiscal policy/fiscal effort/automatic stabilisers. The precise fiscal and business-cycle indicators are shown in brackets.