

Fiscal Rules:  
Does Cyclicalitity Enhance Credibility?  
International Monetary Fund, FAD:FP

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6 October 2009

"The idea of writing new fiscal rules on paper rather than beginning the hard process of cutting entitlements is a joke."  
- *Olivier Blanchard, 1 October 2009*

- Market tolerance of a government's *current* fiscal stance depends on expectations about its fiscal path in the *medium term*.  $\implies$  Expectations matter!
- Fiscal rules can anchor market expectations if they are credible.
- To ensure such credibility, what exactly should we be writing on that paper?

# In This Presentation...

- ...I provide a formal analysis of the market reception of different fiscal-rule frameworks, using quarterly financial and macroeconomic data from a panel of 22 OECD economies for the period 1990-2008.
- ...I focus on a particular feature of existing fiscal rules: whether they encompass **explicit cyclical contingencies** (e.g. through a cyclically adjusted or medium-term budget target) or not.
- Related research: Debrun and Joshi (2009), Hallerberg and Wolff (2006), Poterba and Rueben (2001).

# Preview: Findings

- 1 **In general**, there is no direct "credibility reward" - in the form of reduced spreads - from implementing a new fiscal rule, or tightening an existing rule.
- 2 Countries which already enjoy below-average spreads are most likely to operate a cyclical fiscal rule.
- 3 **Within this group**, cyclical fiscal rules embedded in a tight rule framework are best received by markets.
- 4 Preliminary evidence suggests that cyclical rules are viewed as most durable during economic downturns.

# Presentation Outline

- 1 Introduction
- 2 Cyclical vs. Strict Budget-Balance Rules
- 3 Data and Specification
- 4 Baseline Results
- 5 Robustness Checks
- 6 Summary and Outlook

# Cyclical vs. Strict Budget-Balance Rules (1/2)

## **BBRs with Cyclical Contingencies:**

- Small risk of "perverse" policy incentives leading to procyclical fiscal policy.

⇒ More durable in times of heightened fiscal stress/uncertainty.

- However, harder to monitor compliance

## **Strict BBRs:**

- Easy to monitor compliance.
  - ⇒ Easier to predict long-term fiscal path if rule is observed.
- However, additional risk that government (deliberately) misjudges cyclical "margin for error".

## Cyclical vs. Strict Budget-Balance Rules (2/2)

- 1 **Trade-off** between monitoring complexity and "procyclicality" risk  $\implies$  empirical question!
- 2 **Potential complementarity** between rule visibility/enforcement and cyclical flexibility: the more likely non-compliance is to be detected, and the more severely it is punished, the more "acceptable" may be a cyclical rule.

# Specification

The baseline regression specification is

$$\begin{aligned} spread_{ct} = & \alpha + \beta_0 spread_{ct-1} + \beta_1 \mathbf{X}_{ct} + \eta_c \\ & \beta_2 FRI_{ct} + \beta_3 FRI_{ct} \times Cycl_{ct} + \beta_4 Cycl_{ct} + \varepsilon_{ct}, \end{aligned}$$

where

- $spread_{ct}$  is the sovereign spread between country  $c$  and the US in quarter  $t$ .
- $\mathbf{X}_{ct}$  is a set of country-time-varying control variables (including fiscal and macroeconomic indicators).
- $FRI_{ct}$  is an indicator of the strength of the existing fiscal rule framework (ranging from 0 to 1).
- $Cycl_{ct}$  is a dummy taking value 1 if country  $c$  has a cyclical BBR in quarter  $t$ .



# Data - Dependent Variable and Controls

## Dependent variable:

- $spread_{ct}$ : interest-rate differential adjusted for exchange risk, using relative asset swap.  
*Source:* Thomson Datastream.

## Key control variables:

- $fiscal\_balance_{ct}$ : fiscal balance (% GDP) instrumented with 4 own lags and contemporaneous government tax takings.  
*Source:* OECD Analytics.
- $public\_debt_{ct}$ : public-debt ratio (%), lagged for exogeneity.  
*Source:* OECD Analytics.
- $maastricht_{ct}$  and  $euro_{ct}$ : dummy variables, taking value 1 if country signed the Maastricht Treaty and joined the Eurozone, respectively.

## Fiscal Rule Index (FRI):

- Restricted to budget-balance and debt rules, and central or general government coverage.
- Based on five components:
  - 1 Statutory rank of rule.
  - 2 Existence of external enforcement mechanism.
  - 3 Existence of external monitoring body.
  - 4 Independently set budget assumptions.
  - 5 Transparency.
- Normalised to  $[0, 1]$ .

## Cyclicality dummy:

- Dummy taking value 1 if country has a cyclical BBR.

*Source:* Internal Database for properties, Bloomberg for quarter of legal implementation.

## **Countries in sample:**

Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

## **Countries in sample which implement/operate a cyclical fiscal rule:**

Australia, Denmark, Germany, Norway, Spain, Sweden, Switzerland, United Kingdom.

# Baseline Regression - Full Sample

Dependent variable: Sovereign spread (basis points)	(1)	(2)	(3)	(4)	(5)
		Fixed effects		Fixed effects	Arellano Bond
Lag of sovereign spread (basis points)			0.62*** (0.02)	0.46*** (0.02)	0.46*** (0.02)
Average spread (basis points)	1.00*** (0.04)	1.02*** (0.03)	0.62*** (0.03)	0.74*** (0.03)	0.74*** (0.03)
Fiscal balance (% GDP)			-0.41*** (0.16)	-0.30 (0.21)	-0.06 (0.18)
Lag of public debt (% GDP)			-0.01*** (0.00)	0.03* (0.01)	0.03* (0.01)
Inflation (%)			2.49 (1.93)	2.81 (2.96)	4.78* (2.61)
Unemployment rate (%)			0.56*** (0.20)	0.72* (0.38)	0.85** (0.35)
Output gap (% GDP)			0.25 (0.34)	0.52 (0.37)	0.47 (0.34)
Slope of yield curve (% points)			2.09*** (0.39)	1.88*** (0.39)	1.96*** (0.36)
>Government stability< indicator			-0.87*** (0.27)	-0.60** (0.29)	-0.59** (0.27)
>Maastricht< dummy			7.32*** (1.48)	5.75 (3.72)	4.94 (3.45)
>Eurozone< dummy			-1.78 (1.14)	-2.87** (1.30)	-2.52** (1.21)
>Fiscal rule< index			0.70 (3.67)	-3.49 (5.53)	-3.23 (5.10)
>Fiscal rule< index * >Cyclical< dummy			-15.39** (6.11)	4.30 (8.60)	6.10 (7.89)
>Cyclical< dummy			-0.03 (2.66)	0.41 (3.33)	-0.59 (3.05)
Country fixed effects	No	Yes	No	Yes	Yes
Observations	1,299	1,299	1,145	1,145	1,132
Number of countries	22	22	22	22	22
Adjusted R-squared	0.3	0.7	0.8	0.8	0.8

# Baseline Regression - "Trusted" Countries (1/2)

Dependent variable:	(1)	(2)	(3)
	Sov. spread (basis points) Fixed effects	Sov. spread (basis points) ArellanoBond	Fiscal balance (% GDP) ArellanoBond
Lag of sovereign spread (basis points)	0.37*** (0.03)	0.37*** (0.03)	-0.00*
Average spread (basis points)	0.69*** (0.04)	0.69*** (0.04)	0.00*
Fiscal balance (% GDP)	-0.49* (0.28)	-0.38 (0.25)	
Lag of public debt (% GDP)	-0.03* (0.02)	-0.02 (0.02)	-0.00**
Inflation (%)	-4.21 (4.01)	-2.06 (3.68)	-0.34 (0.28)
Unemployment rate (%)	3.16*** (0.68)	2.97*** (0.63)	0.02 (0.05)
Output gap (% GDP)	0.79 (0.55)	0.81 (0.52)	0.07* (0.04)
Slope of yield curve (% points)	1.79*** (0.56)	1.89*** (0.53)	-0.00 (0.04)
>Government stability< indicator	0.36 (0.43)	0.43 (0.40)	-0.02 (0.03)
>Maastricht< dummy	12.20** (5.21)	12.73*** (4.91)	1.15*** (0.37)
>Eurozone< dummy	-3.09 (3.08)	-3.55 (2.91)	0.16 (0.22)

# Baseline Regression - "Trusted" Countries (2/2)

>Fiscal rule< index	16.50** (7.58)	14.54** (7.13)	1.14** (0.57)
>Fiscal rule< index * >Cyclical< dummy	-20.36 (14.68)	-25.10* (13.64)	-1.21 (1.06)
>Cyclical< dummy	1.29 (3.89)	2.57 (3.54)	0.12 (0.29)
Lag 1 of fiscal balance (% GDP)			0.90*** (0.04)
Lag 2 of Fiscal balance (% GDP)			0.06 (0.06)
Lag 3 of Fiscal balance (% GDP)			0.06 (0.06)
Lag 4 of Fiscal balance (% GDP)			-0.24*** (0.04)
Tax payments (% GDP)			0.29*** (0.04)
Country fixed effects	Yes	Yes	Yes
Observations	493	490	484
Number of countries	9	9	9

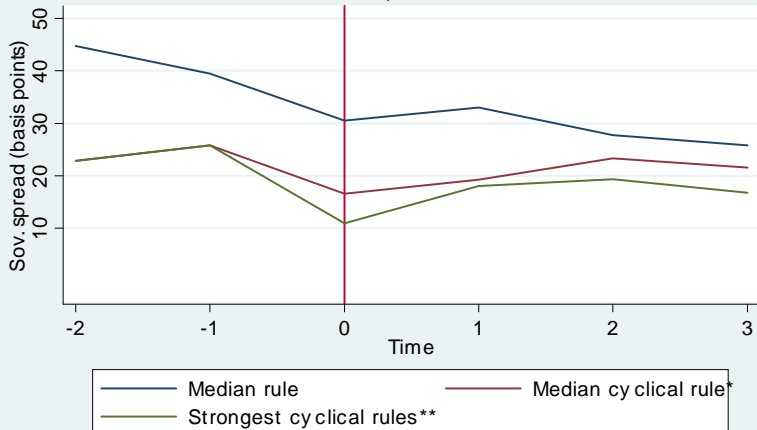
Standard errors in parentheses

\* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%

# Baseline Results - Event Studies

## Market Reactions to Introduction of Fiscal Rules

OECD, 1990-2008



\* Budget target in cyclically adjusted terms or multi-year.

\*\* Above-median changes in Fiscal Rule Index.

## Baseline Results - Qualitative Summary

- Global conditions and country unobservables explain 70% of the data - time-varying macroeconomic conditions only 10%!
- In the full sample, there is no "credibility" effect from fiscal rules (cyclical or strict).
- Low-spread countries seem most likely to implement a strong fiscal rule framework with cyclical contingencies.
- Among these "trusted" countries, well-monitored, well-enforced *and cyclical (!)* rules are rewarded with lower spreads.



# Baseline Results - Quantitative Example

- In 2008, New Zealand had one of the lowest FRIs (approx. 0.3) among low-spread economies, and a strict budget-balance rule.
- **Policy experiment:** Suppose New Zealand were to
  - 1) double the strength of its fiscal-rule framework.
  - 2) replace its strict BBR with a cyclical BBR
  - 3) do both.

	Policy Change	Fiscal balance (% GDP)	Fiscal performance effect (basis points)	Credibility effect (basis points)	Total effect (basis points)
Immediate	1) FRI: +0.3	+ 0.3	- 0.1	+ 4.4	+ 4.3
	2) Cyclical	+/- 0	+/- 0	- 7.5	- 7.5
	3) Both	+ 0.3	- 0.1	- 10.8	- 10.8
Long-term	1) FRI: +0.3	+ 1.1	- 2.0	+ 7.3	+ 5.3
	2) Cyclical	+/- 0	0	- 12.5	- 12.5
	3) Both	+ 1.1	- 2.0	- 18.0	- 20.0

# Robustness Checks - Basic

Dependent variable: Sovereign spread (basis points)	(1) Baseline	(2) Drop Germany	(3) t < 1999Q3
Lag of sovereign spread (basis points)	0.37*** (0.03)	0.37*** (0.03)	0.37*** (0.06)
Average spread (basis points)	0.69*** (0.04)	0.70*** (0.04)	0.38*** (0.10)
Fiscal balance (% GDP)	-0.49* (0.28)	-0.82*** (0.31)	-0.07 (0.61)
Lag of public debt (% GDP)	-0.03* (0.02)	-0.04** (0.02)	0.20* (0.11)
Inflation (%)	-4.21 (4.01)	-10.91** (4.45)	-0.26 (5.82)
Unemployment rate (%)	3.16*** (0.68)	3.17*** (0.74)	-2.50 (1.78)
Output gap (% GDP)	0.79 (0.55)	1.14* (0.59)	-4.51*** (1.41)
Slope of yield curve (% points)	1.79*** (0.56)	1.87*** (0.59)	1.14 (0.86)
>Government stability< indicator	0.36 (0.43)	0.93* (0.48)	0.72 (0.71)
>Maastricht< dummy	12.20** (5.21)	10.81** (5.37)	8.12 (9.17)
>Eurozone< dummy	-3.09 (3.08)	0.00 (0.00)	7.28 (8.89)
>Fiscal rule< index	16.50** (7.58)	16.45** (7.86)	30.87** (12.97)
>Fiscal rule< index * >Cyclical< dummy	-20.36 (14.68)	-37.66** (15.72)	-101.28*** (32.61)
>Cyclical< dummy	1.29 (3.89)	5.78 (4.19)	33.00*** (12.02)
Country fixed effects	Yes	Yes	Yes
Observations	493	433	200
Number of countries	9	9	9
Adjusted R-squared	0.8	0.8	0.6

# Robustness Checks - Downturns

Dependent variable: Sovereign spread (basis points)	(1) Baseline	(2) Output Gap < 0	(3) Real growth < 0
Lag of sovereign spread (basis points)	0.46*** (0.02)	0.43*** (0.03)	0.38*** (0.03)
Average spread (basis points)	0.74*** (0.03)	0.86*** (0.05)	0.81*** (0.05)
Fiscal balance (% GDP)	-0.30 (0.21)	0.22 (0.39)	0.30 (0.44)
Lag of public debt (% GDP)	0.03* (0.01)	0.02 (0.02)	0.06** (0.03)
Inflation (%)	2.81 (2.96)	8.76 (5.58)	17.02** (6.81)
Unemployment rate (%)	0.72* (0.38)	0.49 (0.52)	-0.15 (0.69)
Output gap (% GDP)	0.52 (0.37)	0.75 (0.62)	-1.02 (0.82)
Slope of yield curve (% points)	1.88*** (0.39)	1.08** (0.54)	1.97*** (0.66)
>Government stability< indicator	-0.60** (0.29)	-0.72 (0.44)	-1.07* (0.60)
>Maastricht< dummy	5.75 (3.72)	-7.86 (16.60)	53.09*** (18.44)
>Eurozone< dummy	-2.87** (1.30)	-2.27 (1.73)	1.09 (2.30)
>Fiscal rule< index	-3.49 (5.53)	26.59 (26.32)	-13.29 (35.80)
>Fiscal rule< index * >Cyclical< dummy	4.30 (8.60)	-62.94* (35.13)	-47.87 (46.09)
>Cyclical< dummy	0.41 (3.33)	40.30*** (10.40)	-93.53*** (34.03)
Country fixed effects	Yes	Yes	Yes
Observations	1,145	504	375
Number of countries	22	19	20
Adjusted R-squared	0.8	0.8	0.8

# Robustness Checks - Qualitative Summary

- The baseline finding is robust to the exclusion of individual "trusted" countries, and not peculiar to any sub-period of the full sample.
- Preliminary findings suggest that, conditional on the presence of a fiscal rule, cyclicity reduces the market-perceived risk of fiscal distress *in downturns* (above average unemployment, or negative real growth).
- There is some evidence that this effect is conditional on the overall strength of the fiscal-rule framework - but more work is needed to establish this firmly.

# Summary and Outlook

- Strong, cyclical fiscal rules are most common in "trusted" countries which enjoy below-average spreads.
- In this group, cyclicity appears to enhance credibility, lowering spreads by about 20 basis points in the long run for a reasonable tightening of the FRI.
- Preliminary evidence suggests that, more generally, cyclicity has beneficial effects in economic downturns.

## **Future work:**

- Explore the "downturn" subsample.
- Link with theory?

Many thanks...

*...for all comments and suggestions!*