

*What the perfect ESM would look like*  
Ramon Marimon\*

European University Institute, UPF – Barcelona GSE,  
CEPR and NBER

**CEPR-ESM workshop on crisis resolution in the euro area**

Luxembourg, November 19, 2019

\*With the collaboration of Aitor Erce, Andreja Lenarčič (ESM) and Carolina-López-Quiles (EUI). As usual, neither them nor our institutions should be blamed for what I say.

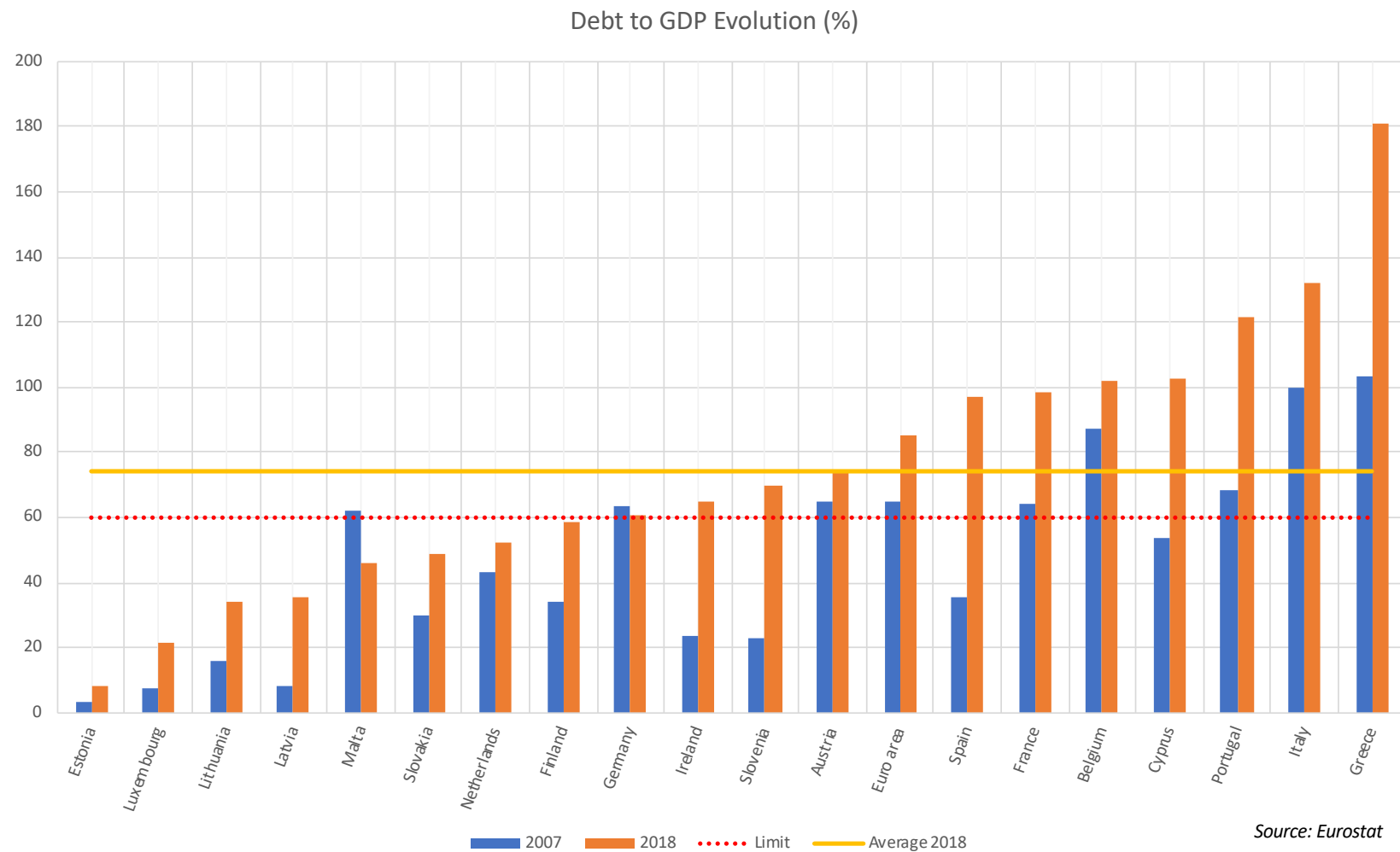
## *What the perfect ESM would look like*

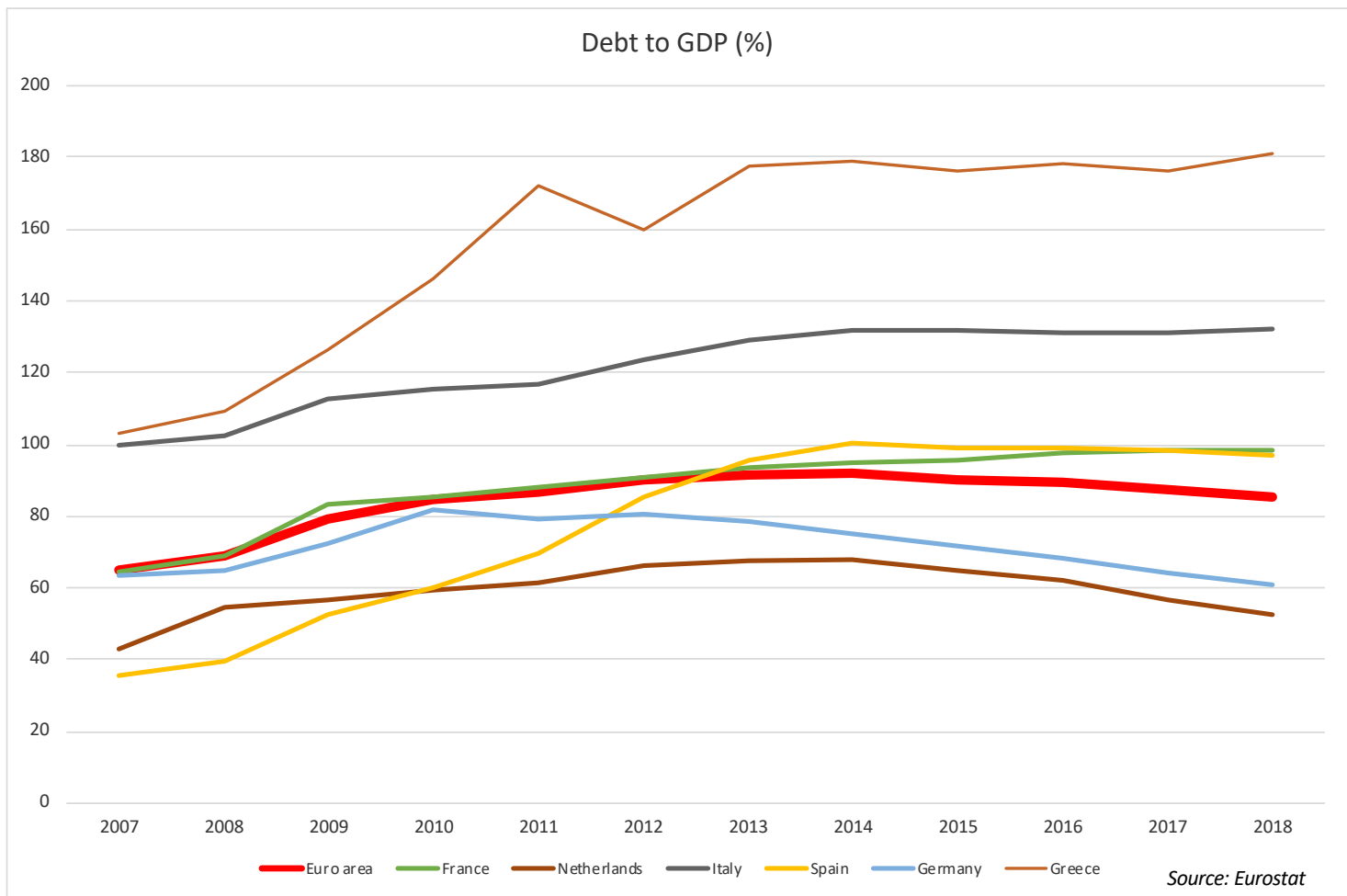
There is no such a thing as a perfect organization,  
as there is no perfect world.

But monetary and fiscal organizations can play a major role  
to enhance the stability and growth of imperfect societies...

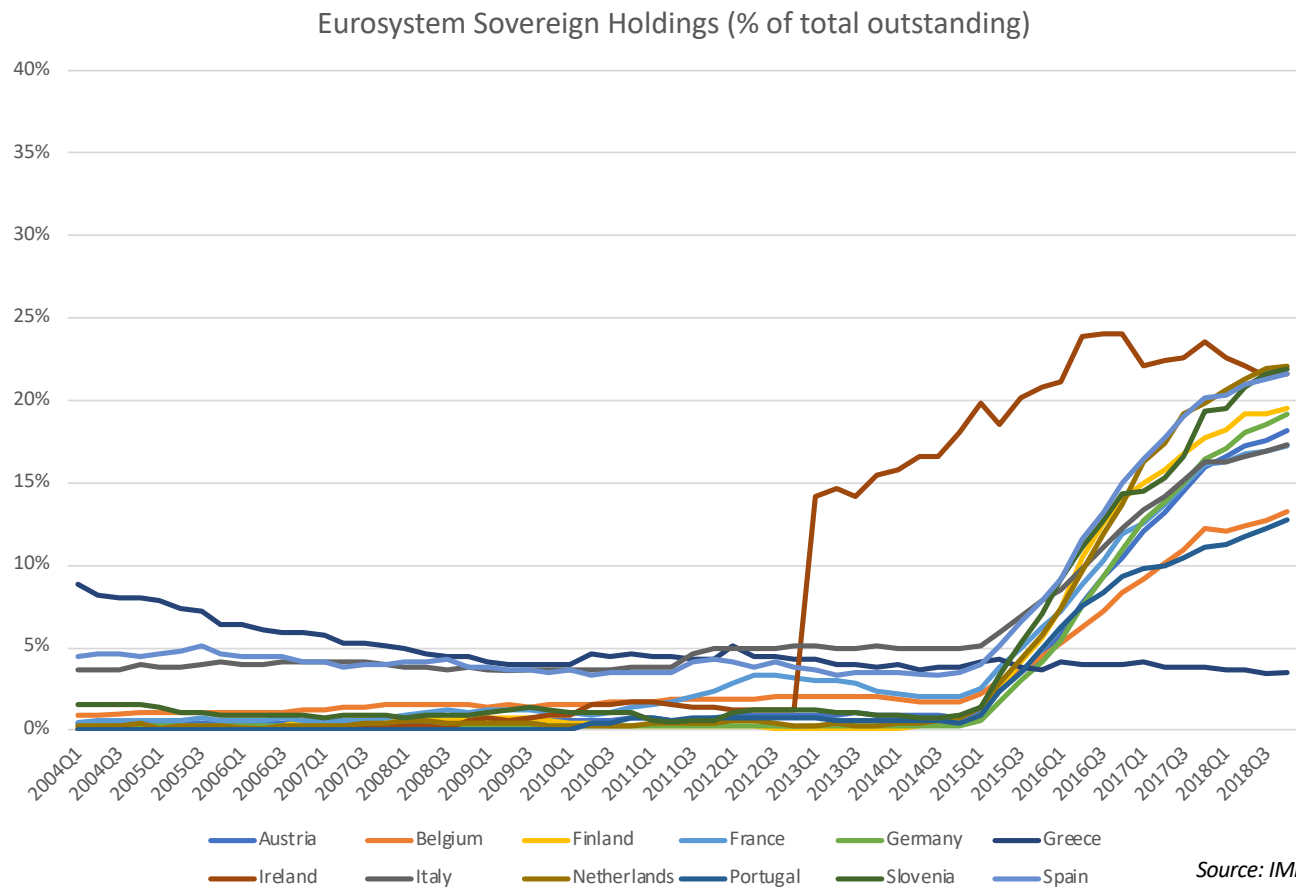
if they are properly designed and managed

Sovereign debts are high (> 60% GDP target) & and higher  
than before the euro crisis

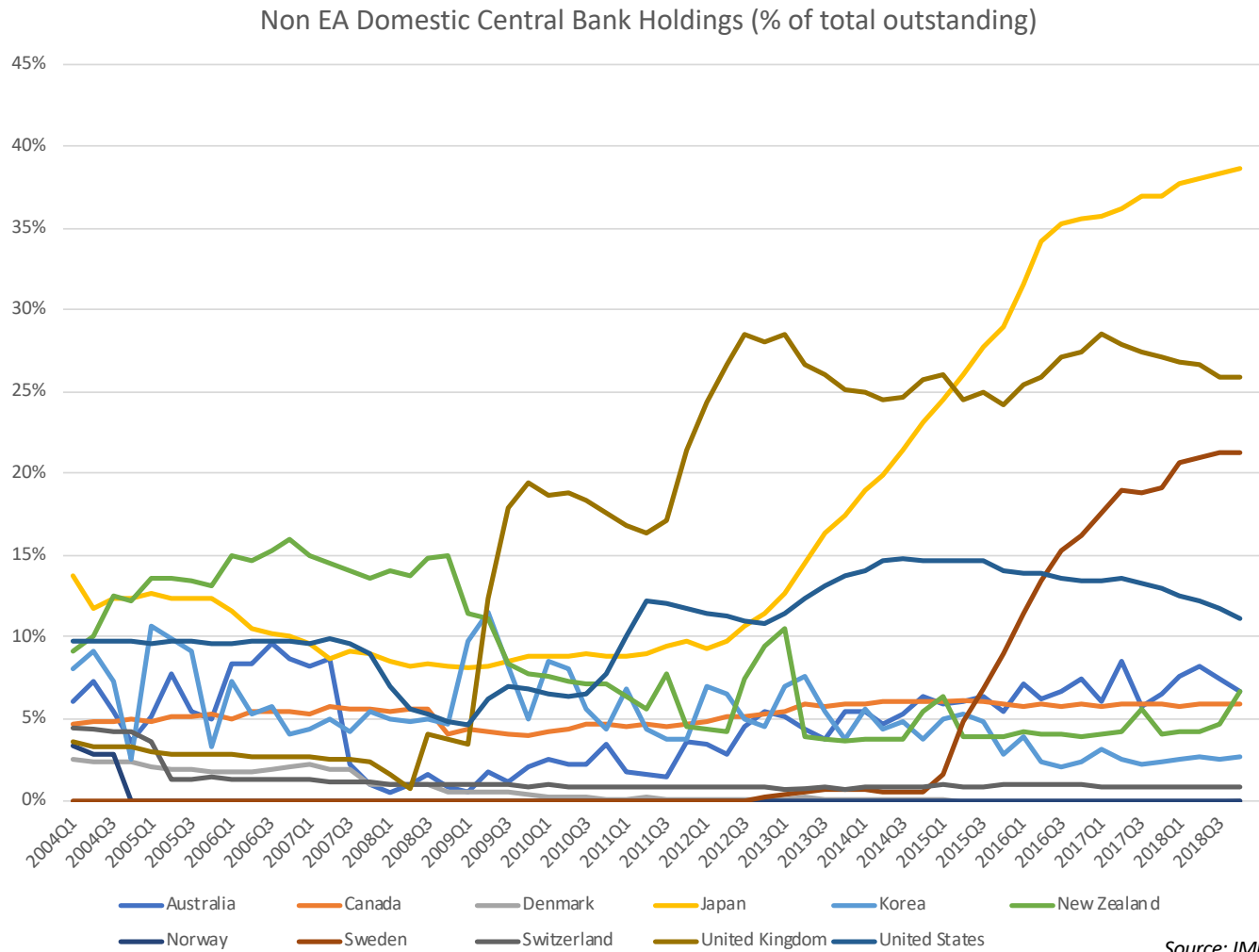




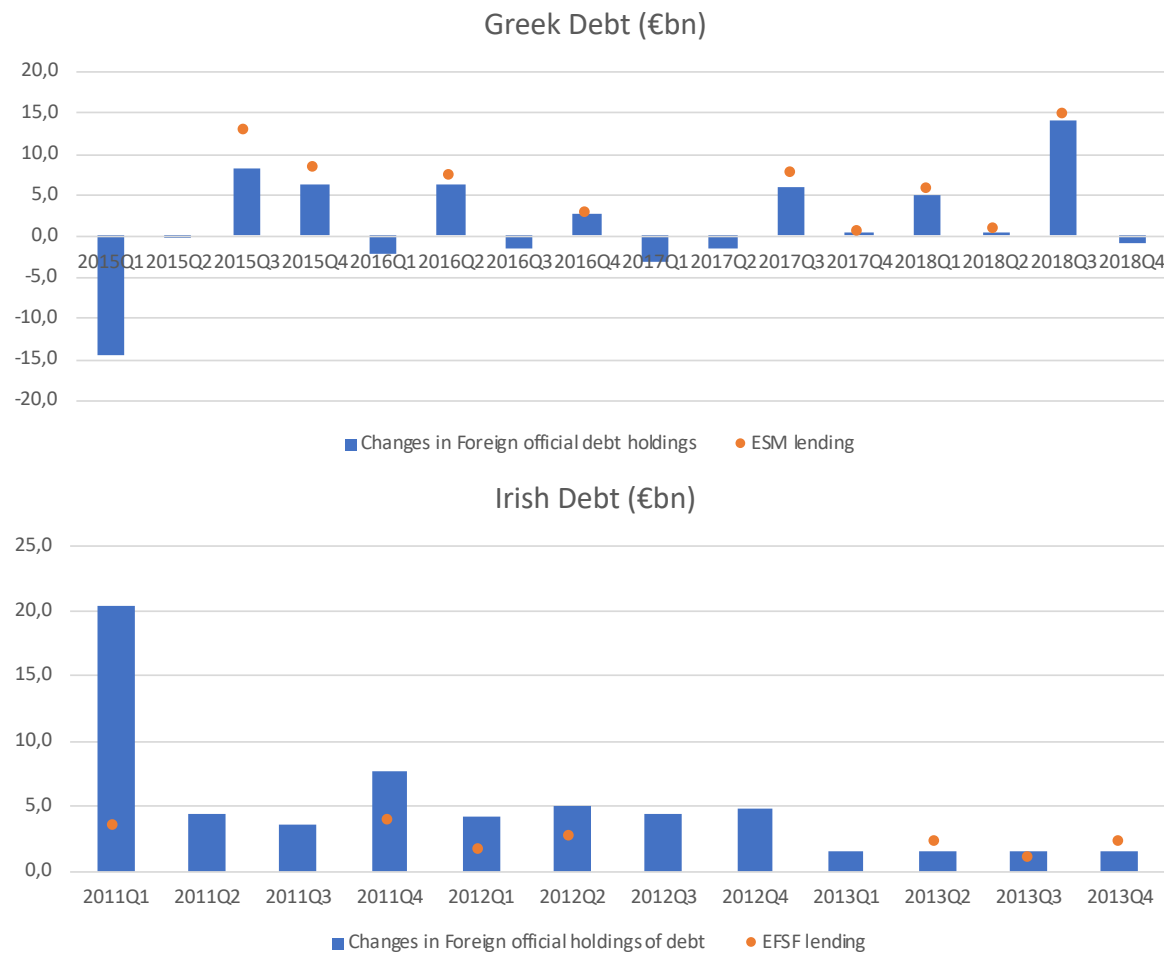
## An important fraction of them being held by the Eurosystem



but not an unusual fraction by OECD standards

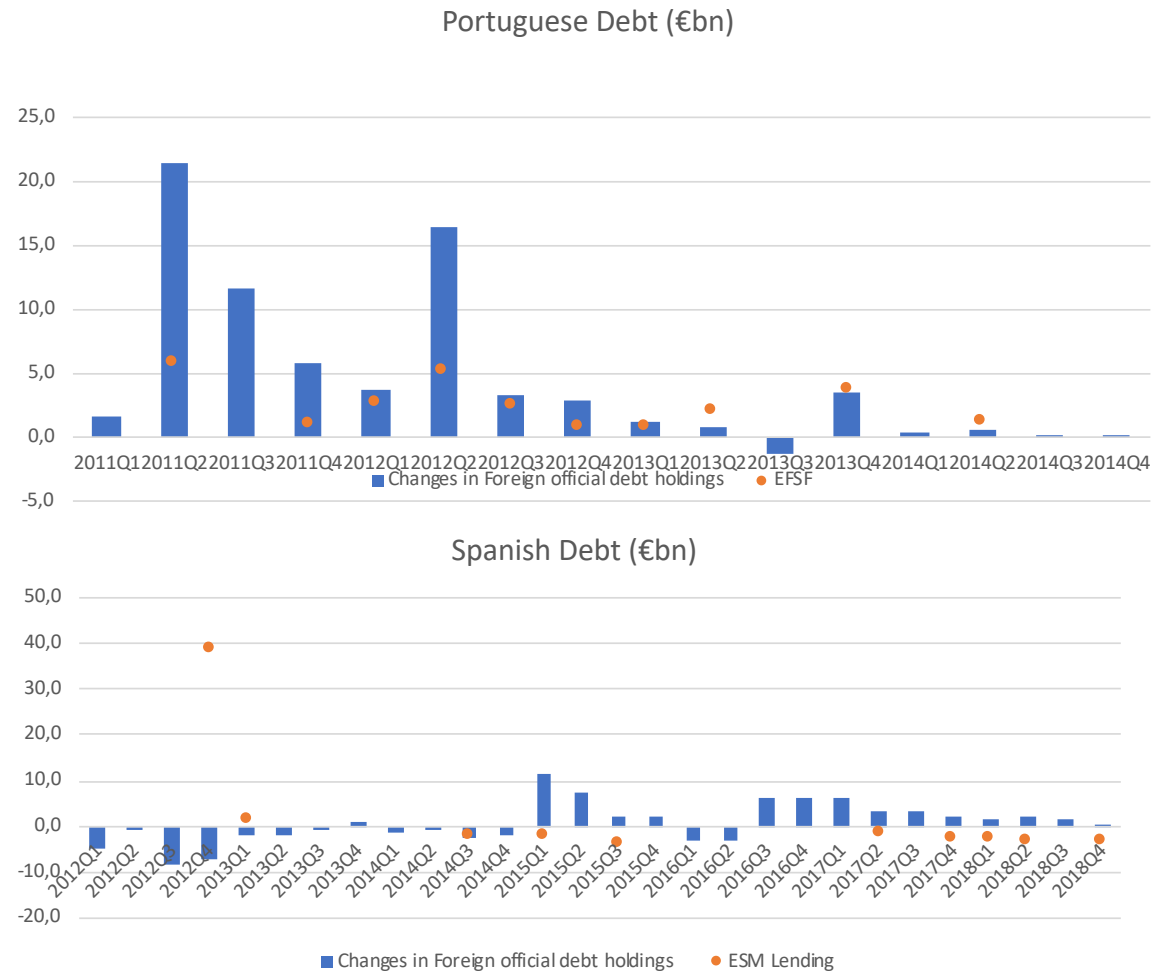


With a key fraction – the euro crisis fraction -- being held by the ESM  
 (Changes in foreign official debt holdings.  $\frac{ESM}{EFSF}$ )



Source: IMF and ESM

With a key fraction – the euro crisis fraction -- being held by the ESM  
 (Changes in foreign official debt holdings. ESM/EFSF)



Source: IMF and ESM



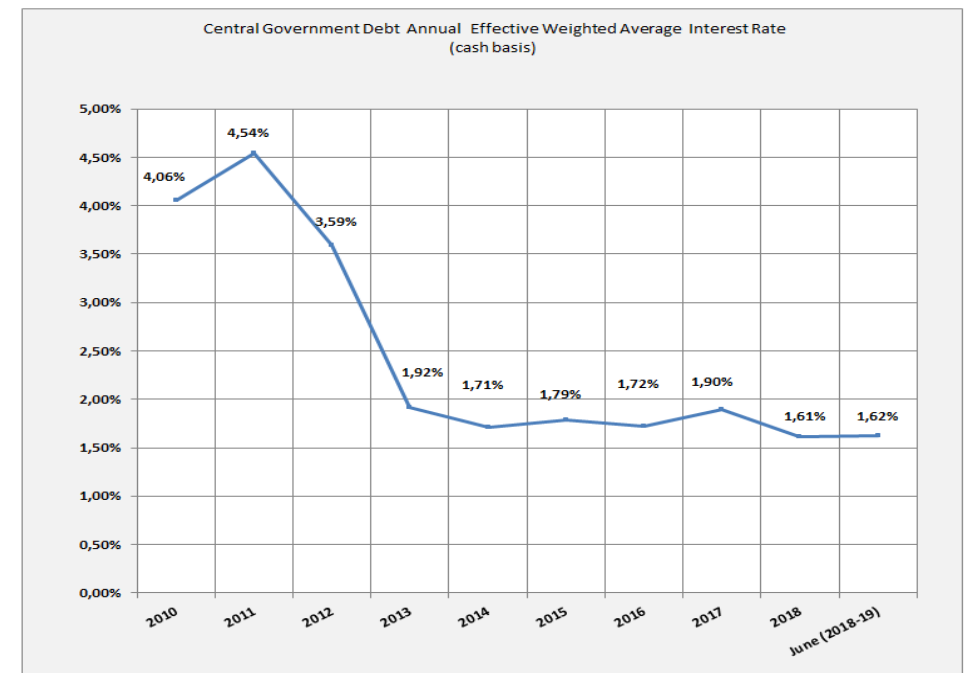
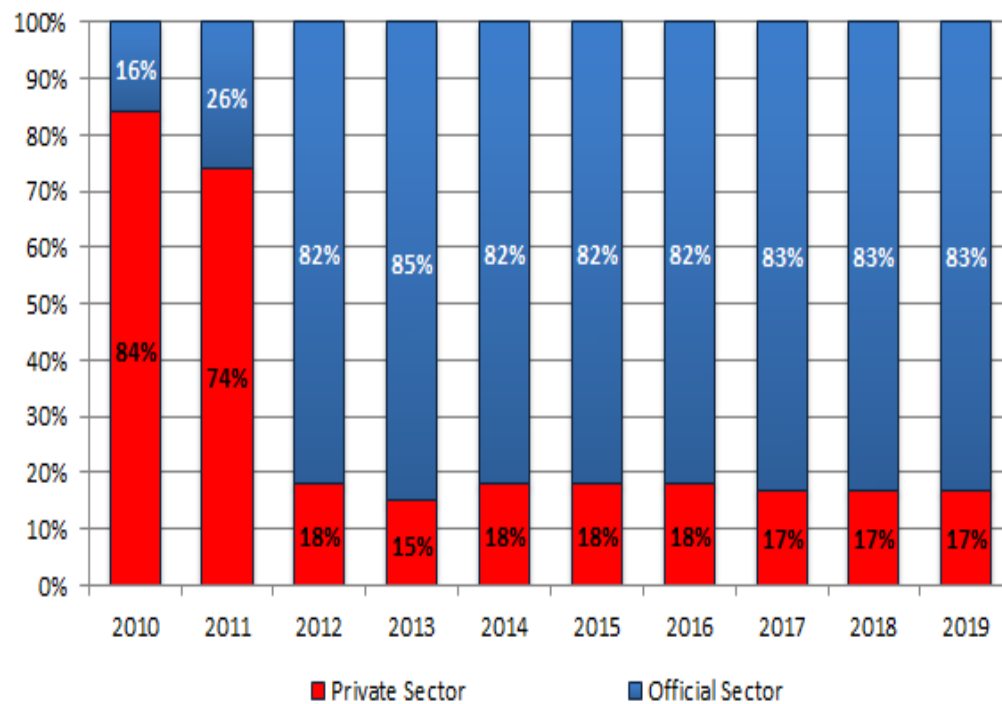
## The ESM redesigning the euro crisis debt while reducing its cost

			Dec-10	Dec-11	Dec-12	Dec-13	Dec-14
Greece	EFSF/ESM	Maturity	5 years	10 years	30 years	30 years	32 years
		Interest rate	404 bps	362 bps	93 bps	123 bps	129 bps
	IMF	Maturity	5 years	5 years	8 years	8 years	8 years
		Interest rate	323 bps	321 bps	307 bps	410 bps	405 bps
Ireland	EFSF/ESM	Maturity	7.5 years	15 years	15 years	22 years	22 years
		Interest rate	525 bps	272 bps	255 bps	226 bps	226 bps
	IMF	Maturity	7 years	7 years	7 years	7 years	7 years
		Interest rate	337 bps	321 bps	307 bps	309 bps	404 bps
Portugal	EFSF/ESM	Maturity	-	15 years	15 years	22 years	22 years
		Interest rate	-	277 bps	233 bps	210 bps	210 bps
	IMF	Maturity	-	7 years	7 years	7 years	7 years
		Interest rate	-	321 bps	307 bps	309 bps	404 bps
Spain	EFSF/ESM	Maturity	-	-	12.5 years	12.5 years	12.5 years
		Interest rate	-	-	98 bps	132 bps	144 bps
	IMF	Maturity	-	-	-	-	-
		Interest rate	-	-	-	-	-
Cyprus	EFSF/ESM	Maturity	-	-	-	15 years	15 years
		Interest rate	-	-	-	82 bps	109 bps
	IMF	Maturity	-	-	-	4 years	4 years
		Interest rate	-	-	-	109 bps	105 bps

Sources: International Monetary Fund, European Commission, European Financial Stability Facility and European Stability Mechanism.

## Redesigning the euro crisis debt while reducing its cost: Greece

Central Government Debt by Type of Creditor



Note: The increase of the effective interest rate in year 2017 is due to the payment of the accrued interest of the PSI bonds that were part of the LME (bond swap) which took place in December 2017.

Source: Public Debt Management Agency of Greece

What is the value of the Greek debt at the ESM?

What is the value of the EA legacy debt?

What is the value of government debt?

# THE VALUE OF GOVERNMENT DEBT

John H. Cochrane

Working Paper 26090

<http://www.nber.org/papers/w26090>

NATIONAL BUREAU OF ECONOMIC RESEARCH

1050 Massachusetts Avenue

Cambridge, MA 02138

July 2019

## ABSTRACT

The market value of government debt equals  
the present discounted value of primary surpluses.

[As Tom Sargent said in his Nobel Prize Lecture]

Applying present value decompositions from asset pricing to this valuation equation,  
I find that [for US] 4, Rue Alphonse Weicker

half of the variation in the market value of debt to GDP ratio  
corresponds to

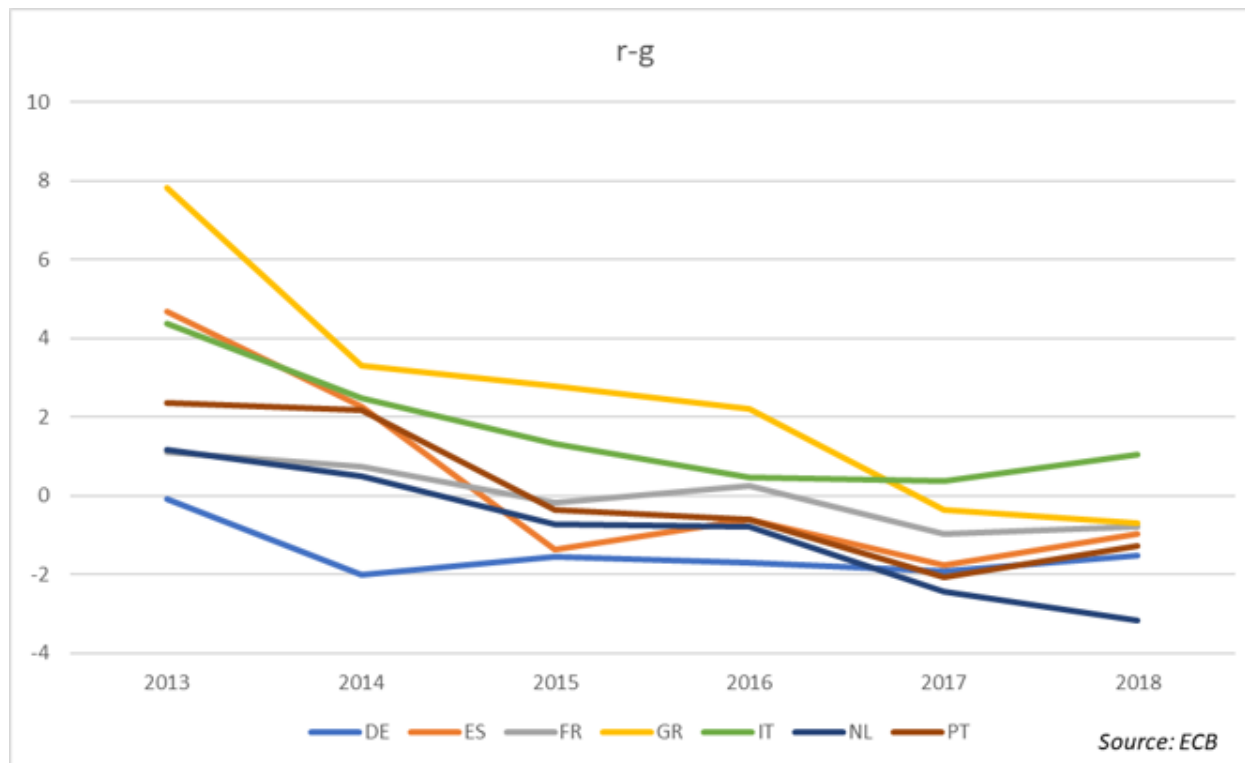
varying forecasts of future primary surpluses,  
and half to varying discount rates.

Variation in expected growth rates is unimportant.

Is the EA in a ' $(r-g) \leq 0$ ' regime ?

(Blanchard's question for US)

More like a recent visit, to which Italy has not been invited!

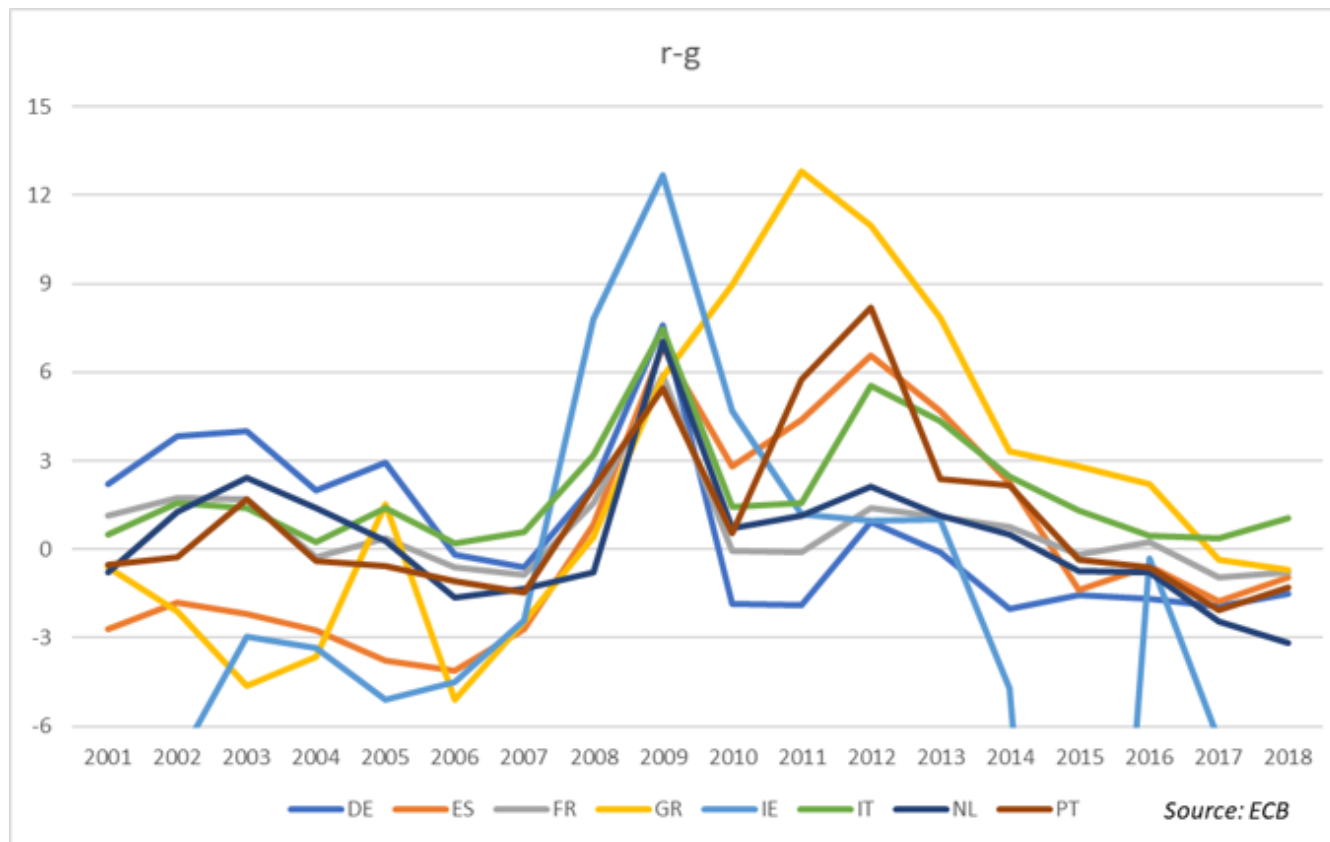


While Greece, with the ESM help, has been!

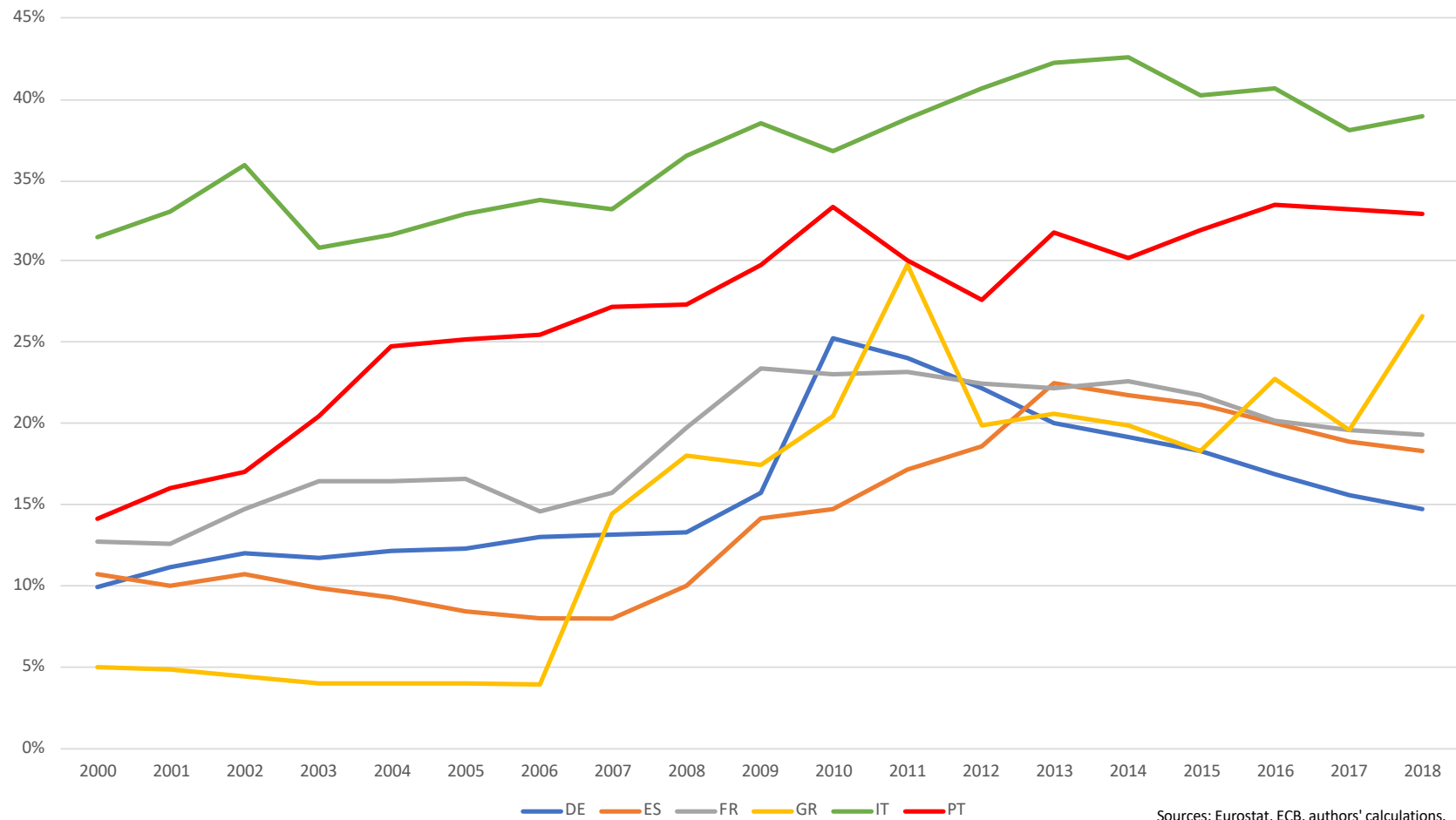
Is the EA in a ' $(r-g) \leq 0$ ' regime

(Blanchard's remark for US)

but let's not mistake a visit with a trend...



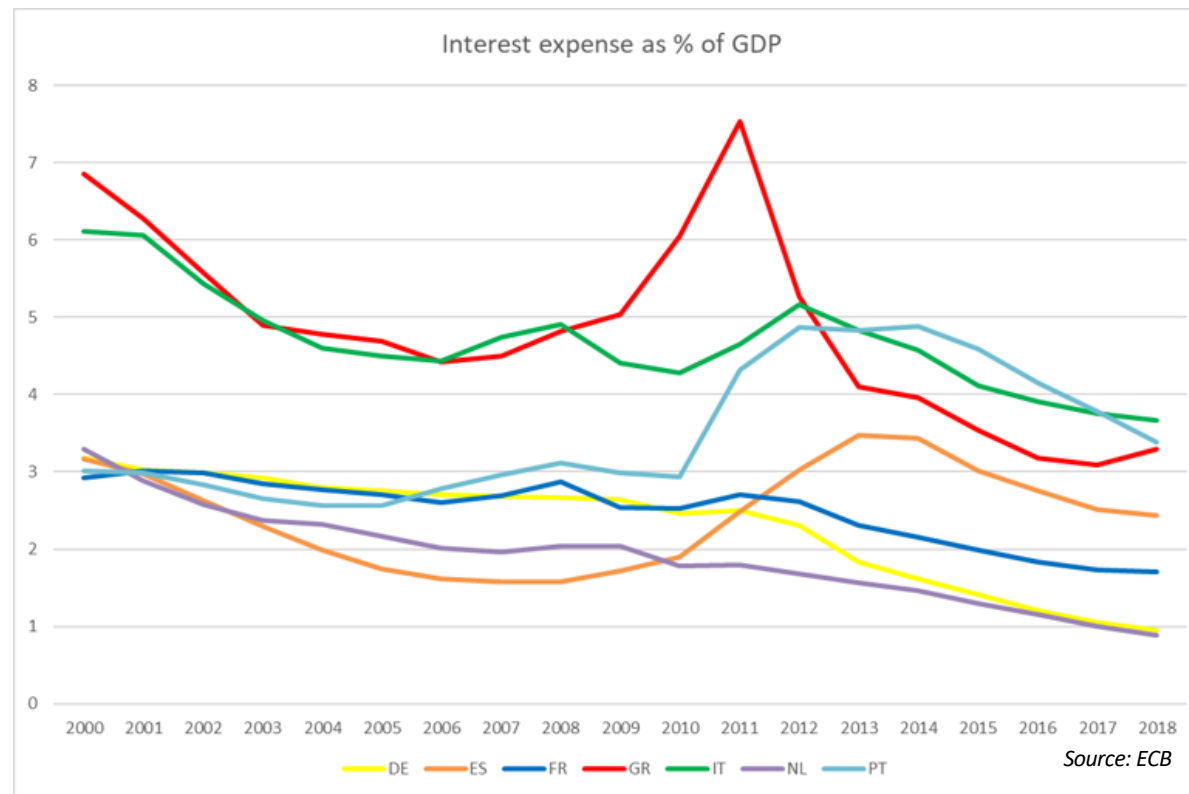
Since debt services to GDP are not trivial for many





even when we only count the interest expenditures

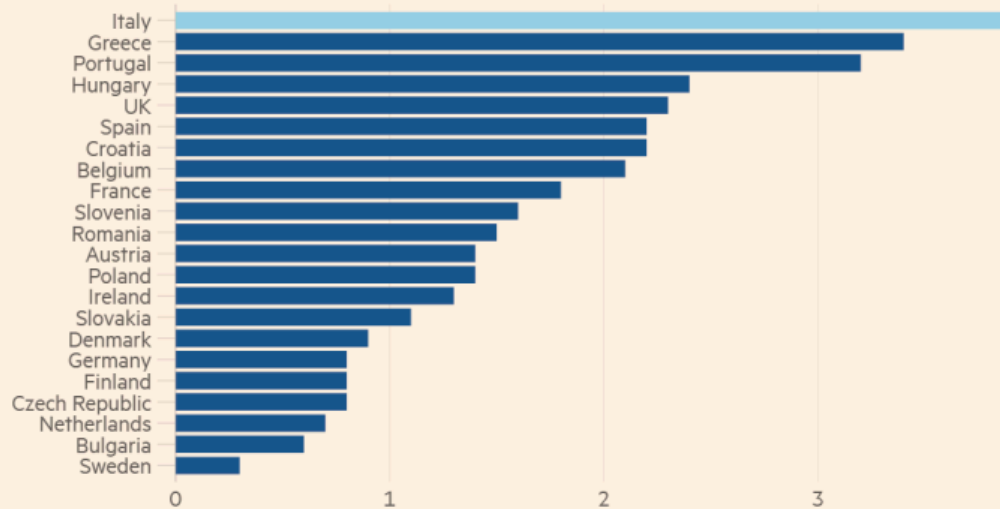
(accrual basis)



with their, European Commission, projections...

### Interest expenditure on public debt are high for Italy

Forecast for 2020, % of GDP

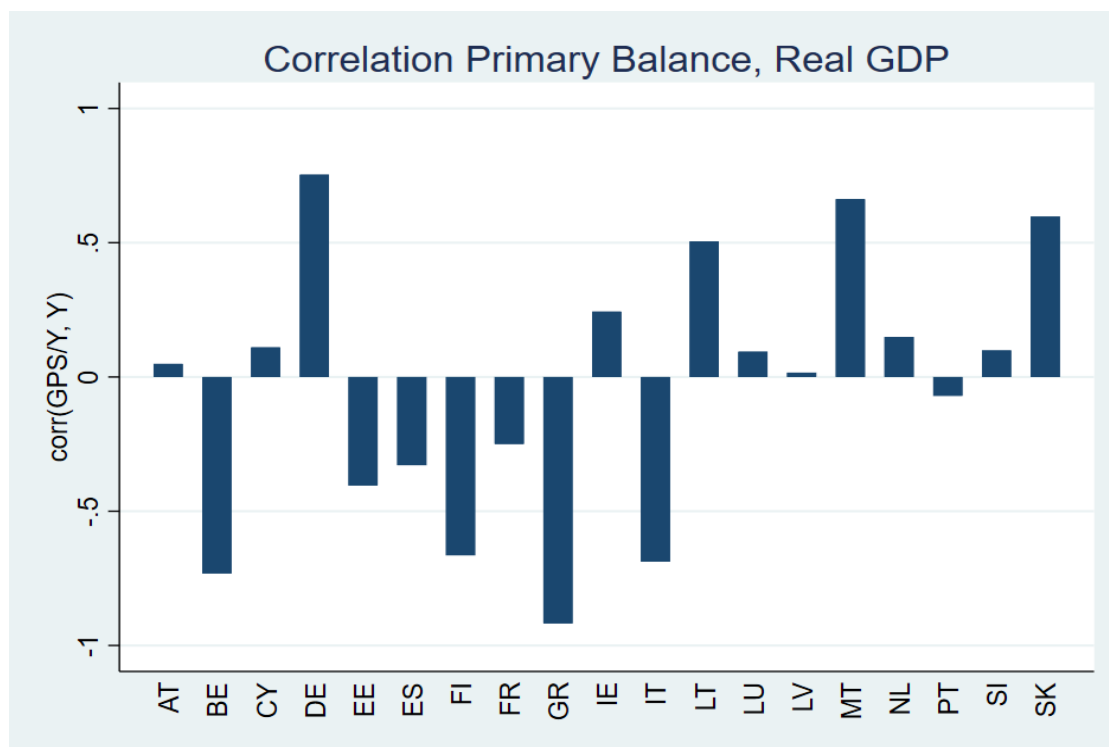


Sources: European Commission Autumn 2018 forecast, @valentinaromei

© FT

For welfare, not only the present value of 'primary surpluses' matters,  
but how they behave (the stochastic discount factor)...

Pro-cyclically for 'EA stressed' *et al.* countries ! (2001 – 2018)



==>

There is no dichotomy between  
risk-reduction and risk-sharing  
(countercyclical fiscal transfers), once  
social welfare is accounted for!

*What about moral hazard?*

*The ESM can not be a transfer mechanism!*

Designing a *European Stability Fund* as a

*Constrained-efficient mechanism*

for who?

for a a long-term self-enforcing partnership...  
(not a Federal State)

the European Union!

(which is not the case  
for the IMF)

(or the European Area,  
which is also a Monetary Union)

Based “On the Optimal Design of Financial Stability Fund”\* by  
**Árpád Ábrahám,      Eva Carceles-Poveda      Yan Liu**  
and **Ramon Marimon**

\* <https://www.ramonmarimon.eu/wp-content/uploads/2019/07/ACLM-FSF-last.pdf>



The ESF is a public financial intermediary  
that transforms  
uncontingent defaultable debts into  
state-contingent (safe) liabilities

In our model, 'who' is an infinitely-lived impatient risk-averse, 'stressed country', and an infinitely-lived, more patient, risk-neutral Fund (infiniteness and risk-aversion are the only important assumptions). Furthermore, all country's debt is sovereign debt, i.e. is a *current account* model.

Maximizing social value, but  
subject to which constraints?

## Designing the ESF accounting for 3+2 constraints:

1. **The sovereignty constraint:** a sovereign country can always EU-exit (or EA-exit): the borrower's *limited enforcement constraint*.

(in the model, exit is defaulting in the debt market with the possibility of getting back to it, but not to the Fund)

2. **The no-persistent transfers constraint:** a bound on redistribution, or value-at-risk: the lender's *limited enforcement constraint*.

(in the model: value-at-risk = 0, for all  $t \geq 0$  !)

## Designing the ESF accounting for 3+2 constraints:

3. **The moral hazard constraint:** ‘(r-g)’ and the severity of shocks depends on which policies and reforms are implemented, but sovereign countries have ownership of their policies (i.e. not all contingencies are contractable, not all threats are credible). An *ex-post moral hazard constraint* and a proper *ex-ante country risk-assessment*, and/or *eligibility criteria* (IMF prior actions?; I come back to this).

(in the model: calibration as risk-assessment and ex-post moral hazard constraint, no ex-ante conditionality; see Chima Simpson-Bell’s follow-up model of moral hazard)

## Designing the ESF accounting for 3+2 constraints:

4. **The asymmetry constraint:** there is no ex-ante 'veil of ignorance' and countries may start with large (debt) liabilities.

(in the model: ESF contracts are country – i.e. 'risk-type' -- specific, borrowers are different from the lender, and countries can enter the fund with relatively large liabilities)

5. **The funding constraint:** the ESF should be (mostly) self-funded. The ESF contract is designed to be, as safe as it can possibly be liability; i.e. no need for ESF capital or external guarantees.

**==> The ESF can issue e-bonds!**

## A closer look at the ESF contract

- The ESF contract is the policy instrument of the ESF
- Defines state-contingent transfers (primary surpluses); contingent on:
  - exogenous shocks ( $\theta$ ), endogenous ( $G$ ), and contract asset/liabilities ( $a$ ); i.e.
  - $\tau(\theta, G, a)$  from the borrower to the lender.
- In normal times,  $\tau$  is just a counter-cyclical transfers [no MH].
- If an enforcement constraint is binding  $a$  (the carrot) is adjusted.
- With moral hazard constraints,  $a$  is also adjusted based on performance,  $G$ ; i.e.  $a$  acts as a carrot and a stick.  
(not much effect in our model, more in Chima's)

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## An *ESF* contract for the 5 EA ‘stressed’ countries (1980 - 2015)

IMD: An Incomplet Markets Economy with Defaultable debt calibrated to data  
Fund or FSF: The same economy with the ESF

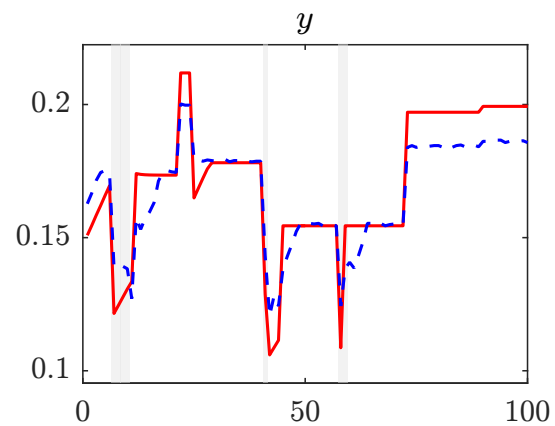
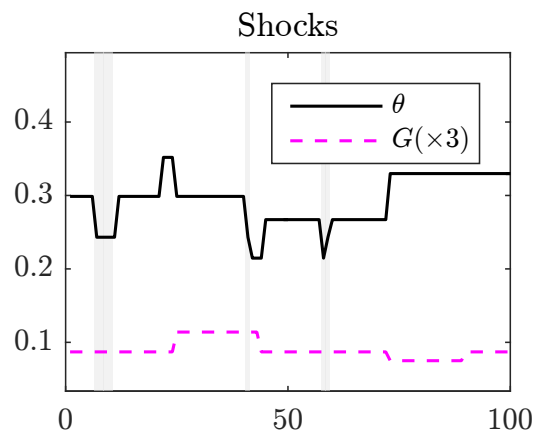
1 <sup>st</sup> Moments	Data	IMD	Fund
<b>Mean</b>			
Debt to GDP ratio	77.29%	78.6%	169.4%
Real bond spread	3.88%	3.61%	−0.058%
$G$ to GDP ratio	20.18%	19.45%	19.21%
Primary surplus to GDP ratio	−0.78%	1.38%	2.96%
Fraction of working hours	36.74%	37.25%	37.83%
Maturity	5.38	5.38	5.38

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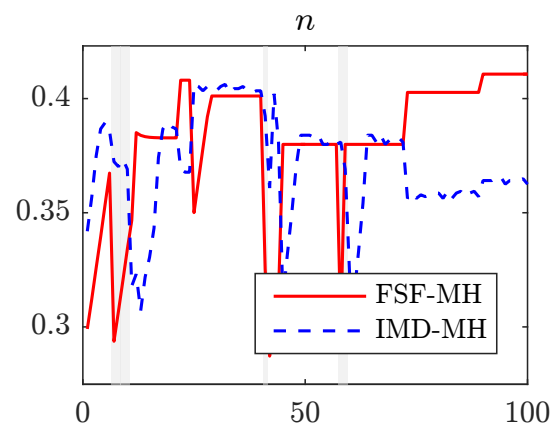
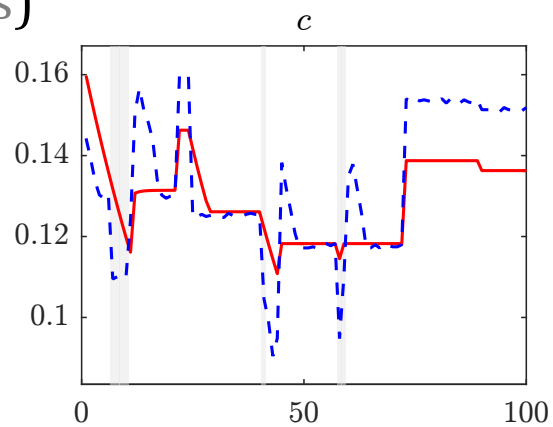
$2^{nd}$ Moments	Data	IMD	Fund
<b>Volatility</b>			
$\sigma(C)/\sigma(Y)$	1.49	1.47	0.36
$\sigma(N)/\sigma(Y)$	0.92	0.70	0.61
$\sigma(G)/\sigma(Y)$	0.91	0.97	0.53
$\sigma(S/Y)/\sigma(Y)$	0.65	0.81	0.92
$\sigma(\text{real spread})$	1.53%	0.98%	0.023%
<b>Correlation</b>			
$\rho(C, Y)$	0.88	0.74	0.59
$\rho(N, Y)$	0.67	-0.10	0.93
$\rho(S/Y, Y)$	-0.29	0.13	0.95
$\rho(G, Y)$	0.35	0.08	0.03
$\rho(\text{real spread}, Y)$	-0.35	-0.29	0.26

IMD vs. Fund  
in periods of crises

(IMD default episodes)

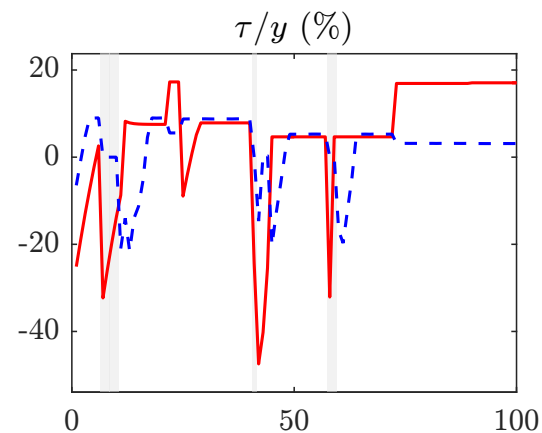
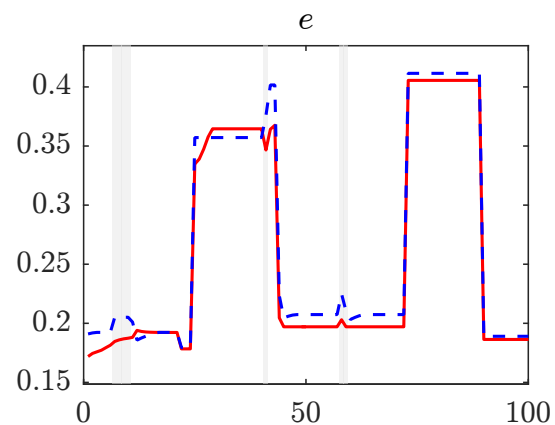


Output  $y$   
Consumption:  $c$   
Labour:  $n$



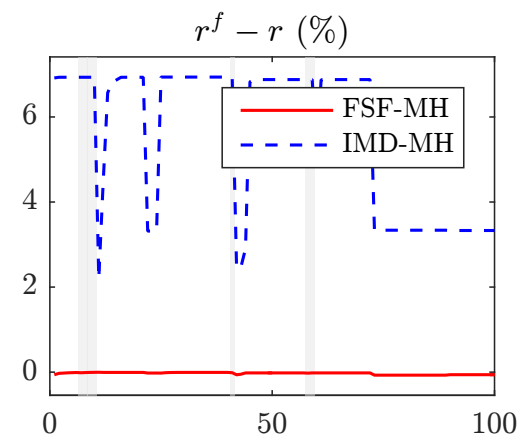
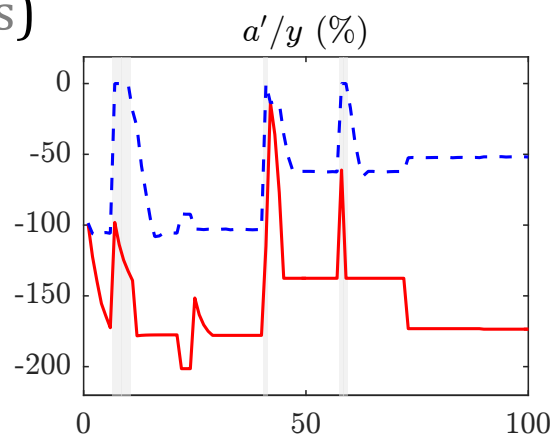


IMD vs. Fund  
in periods of crises



Effort (a better  
G distr.):  $e$

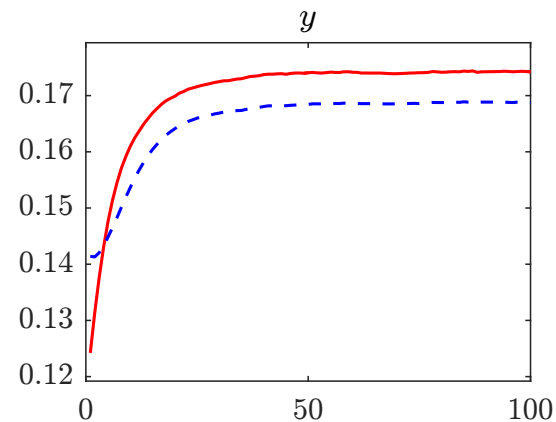
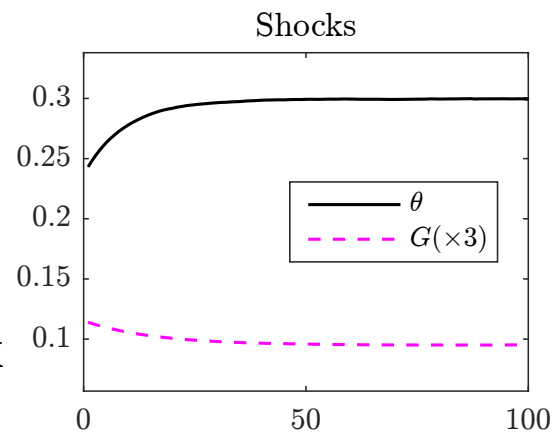
(IMD default episodes)



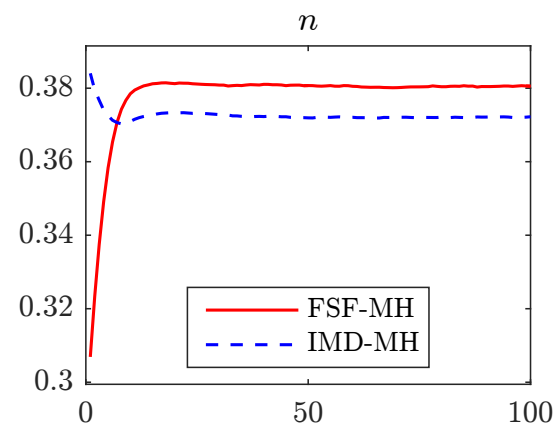
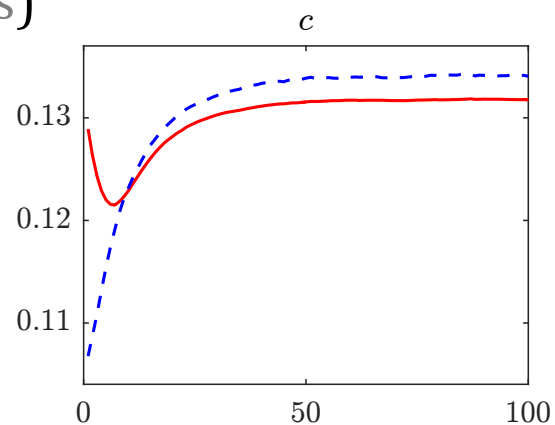
Spreads:  $r^f - r$

IMD vs. Fund  
in an extreme shock

(IMD default episodes)

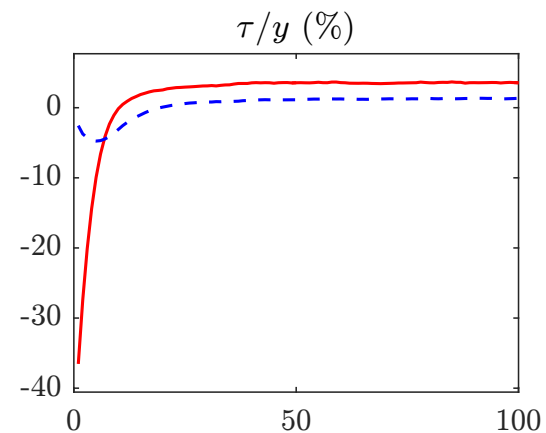
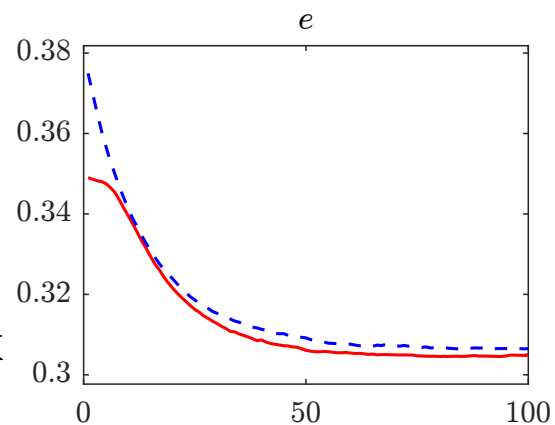


Output  $y$   
Consumption:  $c$   
Labour:  $n$



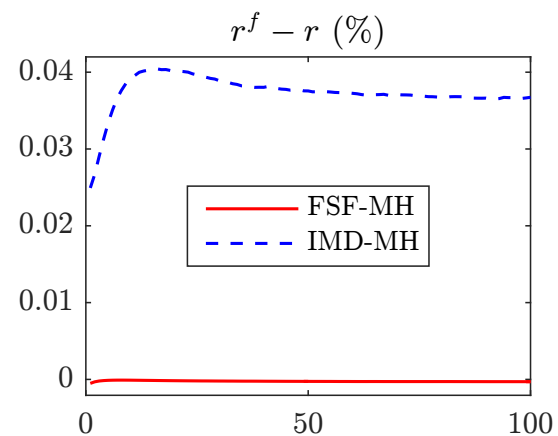
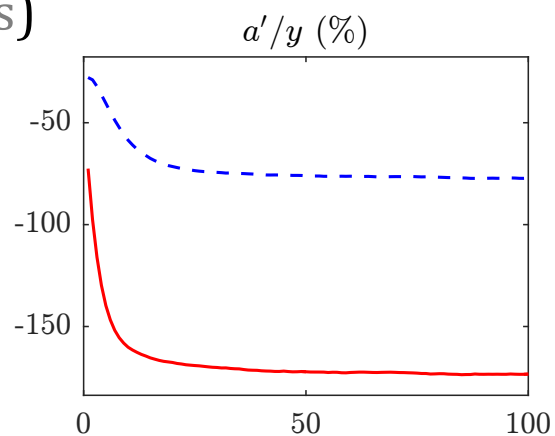
IMD vs. Fund  
in an extreme shock

(IMD default episodes)



Effort (a better  
G distr.):  $e$

Spreads:  $r^f - r$



## Welfare gains and absorbing capacity

Shocks $(\theta, G_c)$	Welfare Gain	$(-b'/y)_{\max}$ : M	$(-a'/y)_{\max}$ : F
$(\theta_l, G_h) = (0.148, 0.038)$	5.91	1.71	66.16
$(\theta_m, G_h) = (0.299, 0.038)$	5.59	107.61	165.08
$(\theta_h, G_h) = (0.456, 0.038)$	3.76	215.15	317.09
$(\theta_l, G_l) = (0.148, 0.025)$	5.07	1.84	67.12
$(\theta_m, G_l) = (0.299, 0.025)$	5.14	111.47	164.63
$(\theta_h, G_l) = (0.456, 0.025)$	3.55	214.78	313.82
Average	5.04		

- Welfare gains are expressed in consumption equivalent terms at  $b = a = 0$  (%).
- $(-b'/y)_{\max}$ ,  $(-a'/y)_{\max}$  are the maximum levels country indebtedness expressed as the percentage of GDP in a given financial environment (Markets or Fund).

## From ESM to ESF: few gaps to close...

### Risk assessment

From:

“The Commission and the ESM will follow and assess macroeconomic and financial risks as well as debt sustainability”

To:

A more integrated (theory based) risk assessment based on few observable, measurable and contractable, elements

# From ESM to ESF: few gaps to close...

## Conditionality

From:

Restrictive eligibility criteria and ex-ante conditionality

(PPCL, ECCL, Full macro adjustment)

To:

A more inclusive menu of risk-based ESF contracts and ex-post conditionality

From:

“What do you need to do”

To:

“What you get depending on the results”

## From ESM to ESF: few gaps to close...

### Conditionality

From:

Mostly non-measurable (quantitative) indicators

To:

Almost exclusively measurable (quantitative) indicators

From:

Conditions as 'sticks'

To:

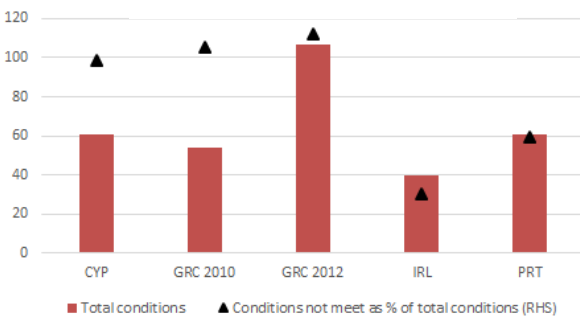
Conditions as 'sticks' and 'carrots'

On ESM conditionality

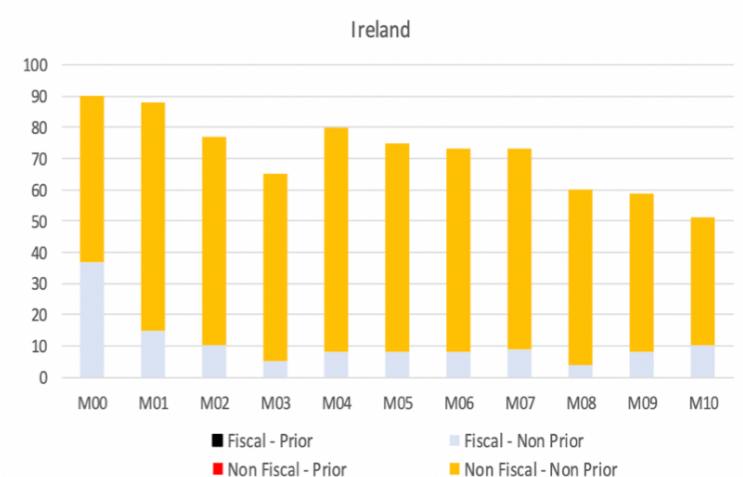
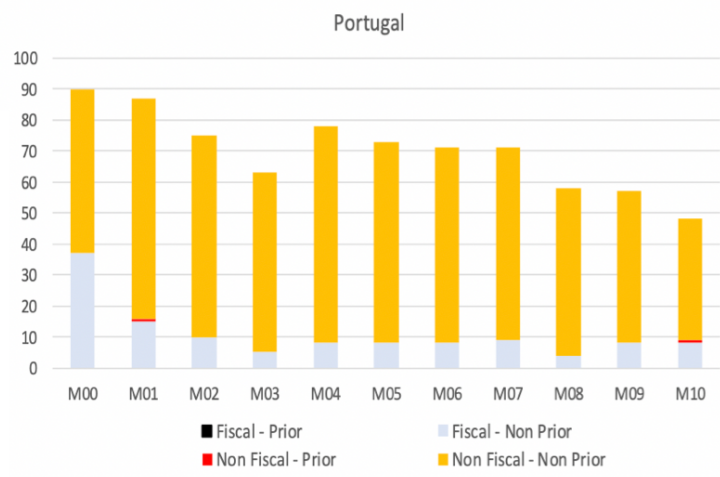
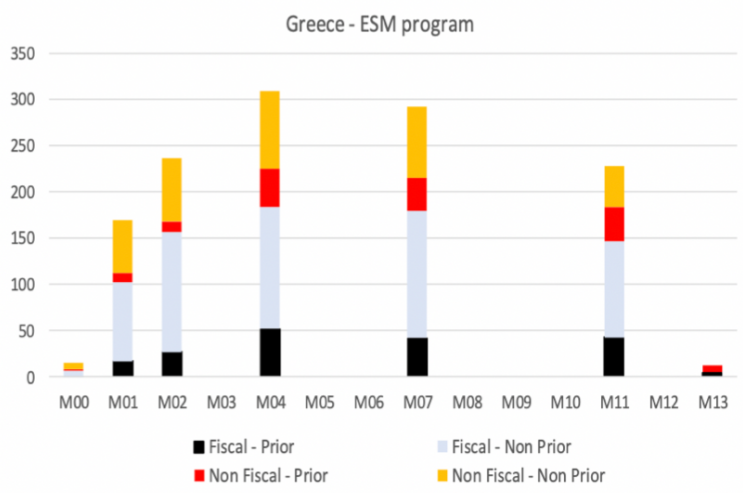
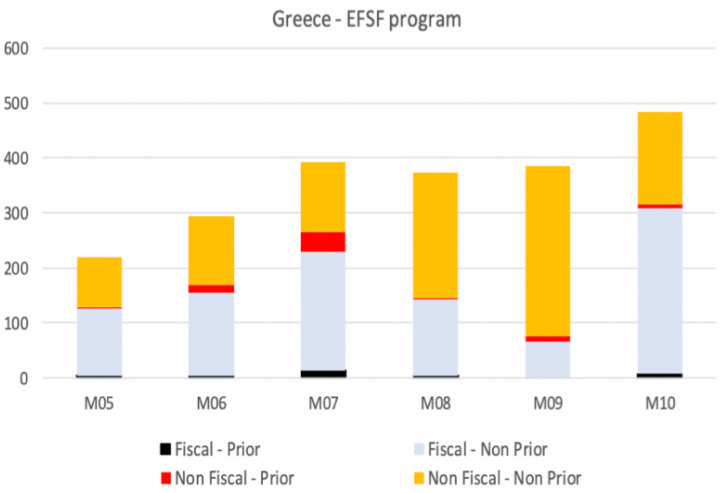
Greece vs  
Portugal & Ireland:  
  
more conditions,  
more prior conditions  
and less compliance

On IMF conditionality

Greece vs  
Portugal & Ireland:  
  
more conditions,  
and less compliance



Source: IMF



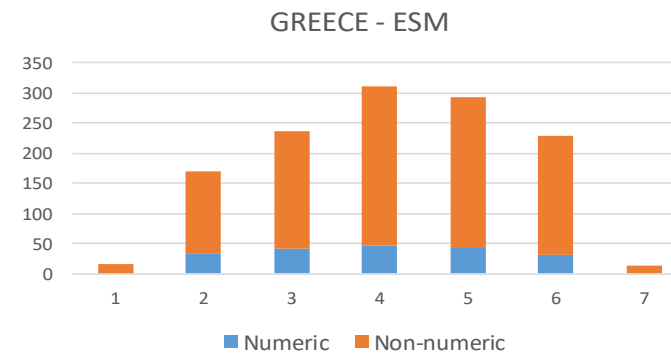
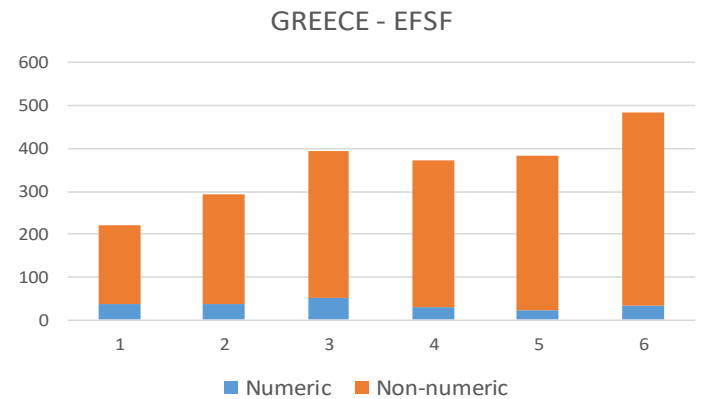
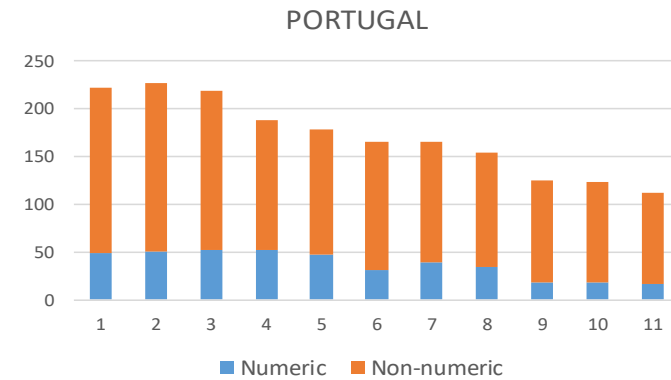
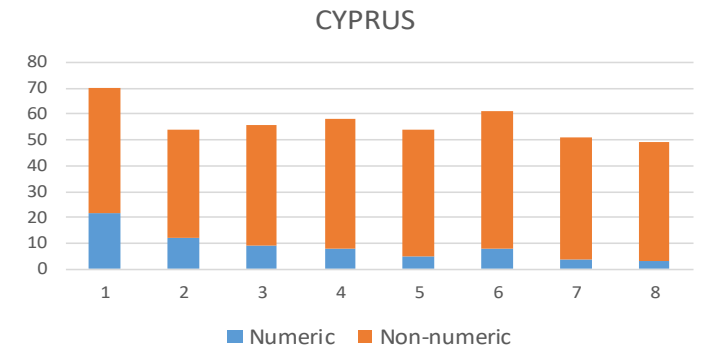
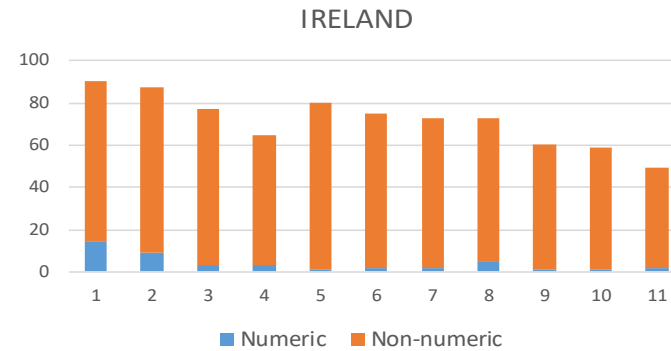
Source: ESM



# On ESM conditionality

Numeric < 22%

Greece vs  
Portugal & Ireland:  
less numeric



Source: ESM

## From ESM to ESF: few gaps to close...

### Debt Restructuring

From:

(Proposed) excessive ex-ante DR and (ad-hoc) DR or New Rounds

To:

None (or minimal) ex-ante DR and ex-post endogenous valuation adjustments  
(when constraints bind)

From:

Discretionary measure, prompt to speculation

To:

Explicit contracts, anchoring expectations

# Ongoing research to develop the theory and close the gaps

- The ESF in a monetary union: how ESF and ECB should interact?

Fiscal and Currency Union with Default and Exit\*

Alessandro Ferrari<sup>†</sup>

Ramon Marimon<sup>‡</sup>

Chima Simpson-Bell<sup>§</sup>

October 29, 2019

- How ESF should design contracts including only a fraction of the government debt?
- How the ESF contracts compare to proposed Rainy-Day Funds?
- ...

Thanks!