What the perfect ESM would look like
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*With the collaboration of Aitor Erce, Andreja Lenarčič (ESM) and Carolina-López-Quíles (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.
Debt to GDP (%)

- Euro area
- France
- Netherlands
- Italy
- Spain
- Germany
- Greece

Source: Eurostat
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.  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

<table>
<thead>
<tr>
<th>Country</th>
<th>EFSF/ESM</th>
<th>IMF</th>
<th>Greece</th>
<th>IMF</th>
<th>Ireland</th>
<th>IMF</th>
<th>Portugal</th>
<th>IMF</th>
<th>Spain</th>
<th>IMF</th>
<th>Cyprus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maturity</td>
<td>Interest rate</td>
<td>Maturity</td>
<td>Interest rate</td>
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<td>Interest rate</td>
<td>Maturity</td>
<td>Interest rate</td>
<td>Maturity</td>
</tr>
<tr>
<td>Greece</td>
<td>5 years</td>
<td>10 years</td>
<td>30 years</td>
<td>30 years</td>
<td>32 years</td>
<td>404 bps</td>
<td>362 bps</td>
<td>93 bps</td>
<td>123 bps</td>
<td>129 bps</td>
<td>5 years</td>
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<tr>
<td>IMF</td>
<td>323 bps</td>
<td>321 bps</td>
<td>307 bps</td>
<td>410 bps</td>
<td>405 bps</td>
<td>525 bps</td>
<td>272 bps</td>
<td>255 bps</td>
<td>226 bps</td>
<td>226 bps</td>
<td>7 years</td>
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<tr>
<td>Ireland</td>
<td>7.5 years</td>
<td>15 years</td>
<td>15 years</td>
<td>22 years</td>
<td>22 years</td>
<td>337 bps</td>
<td>321 bps</td>
<td>307 bps</td>
<td>309 bps</td>
<td>404 bps</td>
<td>-</td>
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<tr>
<td>IMF</td>
<td>-</td>
<td>7 years</td>
<td>7 years</td>
<td>7 years</td>
<td>7 years</td>
<td>-</td>
<td>321 bps</td>
<td>307 bps</td>
<td>309 bps</td>
<td>404 bps</td>
<td>-</td>
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<tr>
<td>Portugal</td>
<td>-</td>
<td>-</td>
<td>12.5 years</td>
<td>12.5 years</td>
<td>12.5 years</td>
<td>-</td>
<td>-</td>
<td>98 bps</td>
<td>132 bps</td>
<td>144 bps</td>
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<tr>
<td>IMF</td>
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<td>Spain</td>
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<td>IMF</td>
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<tr>
<td>Cyprus</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>15 years</td>
<td>15 years</td>
<td>82 bps</td>
<td>82 bps</td>
<td>109 bps</td>
<td>109 bps</td>
<td>105 bps</td>
<td>-</td>
</tr>
</tbody>
</table>

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?
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) ≤ 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...
For welfare, not only the present value of ‘primary surpulses’ matters, but how they behave (the stochastic discount factor)...

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 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

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)

**IMD**: An Incompleten Markets Economy with Defaultable debt calibrated to data

**Fund or FSF**: The same economy with the ESF

<table>
<thead>
<tr>
<th>1st Moments</th>
<th>Data</th>
<th>IMD</th>
<th>Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt to GDP ratio</td>
<td>77.29%</td>
<td>78.6%</td>
<td>169.4%</td>
</tr>
<tr>
<td>Real bond spread</td>
<td>3.88%</td>
<td>3.61%</td>
<td>-0.058%</td>
</tr>
<tr>
<td>$G$ to GDP ratio</td>
<td>20.18%</td>
<td>19.45%</td>
<td>19.21%</td>
</tr>
<tr>
<td>Primary surplus to GDP ratio</td>
<td>-0.78%</td>
<td>1.38%</td>
<td>2.96%</td>
</tr>
<tr>
<td>Fraction of working hours</td>
<td>36.74%</td>
<td>37.25%</td>
<td>37.83%</td>
</tr>
<tr>
<td>Maturity</td>
<td>5.38</td>
<td>5.38</td>
<td>5.38</td>
</tr>
<tr>
<td>2\textsuperscript{nd} Moments</td>
<td>Data</td>
<td>IMD</td>
<td>Fund</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td><strong>Volatility</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\sigma(C')/\sigma(Y)$</td>
<td>1.49</td>
<td>1.47</td>
<td>0.36</td>
</tr>
<tr>
<td>$\sigma(N)/\sigma(Y)$</td>
<td>0.92</td>
<td>0.70</td>
<td>0.61</td>
</tr>
<tr>
<td>$\sigma(G')/\sigma(Y)$</td>
<td>0.91</td>
<td>0.97</td>
<td>0.53</td>
</tr>
<tr>
<td>$\sigma(S/Y)/\sigma(Y)$</td>
<td>0.65</td>
<td>0.81</td>
<td>0.92</td>
</tr>
<tr>
<td>$\sigma(\text{real spread})$</td>
<td>1.53%</td>
<td>0.98%</td>
<td>0.023%</td>
</tr>
<tr>
<td><strong>Correlation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\rho(C, Y)$</td>
<td>0.88</td>
<td>0.74</td>
<td>0.59</td>
</tr>
<tr>
<td>$\rho(N, Y)$</td>
<td>0.67</td>
<td>-0.10</td>
<td>0.93</td>
</tr>
<tr>
<td>$\rho(S/Y, Y)$</td>
<td>-0.29</td>
<td>0.13</td>
<td>0.95</td>
</tr>
<tr>
<td>$\rho(G, Y)$</td>
<td>0.35</td>
<td>0.08</td>
<td>0.03</td>
</tr>
<tr>
<td>$\rho(\text{real spread}, Y)$</td>
<td>-0.35</td>
<td>-0.29</td>
<td>0.26</td>
</tr>
</tbody>
</table>
IMD vs. Fund in periods of crises

(IMD default episodes)

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

Shocks

$\theta$
$G(\times 3)$

Output $y$
Consumption: $c$
Labour: $n$
**IMD vs. Fund**  
in periods of crises  

(IME default episodes)

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

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

<table>
<thead>
<tr>
<th>Shocks ((\theta, G_c))</th>
<th>Welfare Gain</th>
<th>(-b'/y_{\text{max}}): M</th>
<th>(-a'/y_{\text{max}}): F</th>
</tr>
</thead>
<tbody>
<tr>
<td>((\theta_l, G_h) = (0.148, 0.038))</td>
<td>5.91</td>
<td>1.71</td>
<td>66.16</td>
</tr>
<tr>
<td>((\theta_m, G_h) = (0.299, 0.038))</td>
<td>5.59</td>
<td>107.61</td>
<td>165.08</td>
</tr>
<tr>
<td>((\theta_h, G_h) = (0.456, 0.038))</td>
<td>3.76</td>
<td>215.15</td>
<td>317.09</td>
</tr>
<tr>
<td>((\theta_l, G_l) = (0.148, 0.025))</td>
<td>5.07</td>
<td>1.84</td>
<td>67.12</td>
</tr>
<tr>
<td>((\theta_m, G_l) = (0.299, 0.025))</td>
<td>5.14</td>
<td>111.47</td>
<td>164.63</td>
</tr>
<tr>
<td>((\theta_h, G_l) = (0.456, 0.025))</td>
<td>3.55</td>
<td>214.78</td>
<td>313.82</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>5.04</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Welfare gains are expressed in consumption equivalent terms at \(b = a = 0\) (\%).
- \((-b'/y)_{\text{max}}, (-a'/y)_{\text{max}}\) 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†  Ramon Marimon‡  Chima Simpson-Bell§

  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!