The Economics of Sovereign Debt, Bailouts and the Eurozone Crisis

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Discussion:
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Question

- What is the role of bailouts within a monetary union?
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Methodology

- Estimate implicit transfers in official lending to Euro periphery
- Develop simple, transparent, flexible model to address this and other related questions
Main ingredients

- Non-contingent borrowing by Euro periphery governments
- Private lenders from Euro core
- Bailouts from core to periphery governments
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Main forces

- Bailouts allow for "orderly partial defaults"
- Private lenders do not internalize cost of bailout by their governments
Results

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  - transfer from lender to borrower
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  - benefit periphery
  - may benefit core, but only if they avoid default on pre-existing debt
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- Extensions
  - default vs. exit, debt monetization
Estimation of bailouts: Comments

- Very informative description of role of official lenders

- Estimate size of transfers from difference in interest rates between loans from
  - IMF (assumed to not imply any transfer)
  - Euro sources

- A caveat
  - IMF loans on average shorter maturity
  - yield curve often inverts during crises
  - might overestimate transfers
The Yield Curve in 2015

Jan-15
Dec-14
Jul-14
Syriza wins the elections
Greece regain access to Financial Markets

Source: Bank of Greece
The Yield Curve in 2015

June: EU Bailout plan is rejected in referendum

September: Austerity plan is approved

Source: Bank of Greece
A simple model

- Two periods \( t \in \{0, 1\} \), two countries \( c \in \{i, g\} \)

- Technology

\[
y^g = (y + \varepsilon, y - \varepsilon) \\
y^i = (y - \varepsilon, y + \varepsilon - \phi_1 \cdot I_{def})
\]

\[
\phi_1 = \begin{cases} 
\phi & \text{w.p. } p \\
\infty & \text{w.p. } 1 - p
\end{cases}
\]

where \( \phi < \varepsilon \)

- Preferences

\[
U^i = u(c^i_0) + u(c^i_1) \quad \text{and} \quad U^g = c^g_0 + c^g_1
\]

- Governments \( G^c \in \{G^i, G^g\} \) maximize domestic utility

  - \( G^i \) can force \( i \) residents to repay \( g \) residents
  - \( G^g \) can pay \( \tau_1 \) to \( G^i \) to encourage enforcement
A simple model

- Assume $p = 0$

- Full enforcement

$\tau_1 = 0$

$\frac{1}{R^i} = q = 1$

$b = \varepsilon$

$c^i_0 = c^i_1 = c^g_0 = c^g_1 = y$

- Efficient trade

- Assume $p < 1$ from now on
A simple model

- Assume
  - $p = 0.5$
  - there are contingent assets
  - no bailouts

- No default and no "wasted liquidity"

\[
\begin{align*}
\text{Low} & : b_{low} = \phi \quad \text{and} \quad b_{high} = \varepsilon + 0.33 \cdot (\varepsilon - \phi) \\
q_{low} = q_{high} = 0.5 \\
c_{low}^i = y + \varepsilon - \phi \quad \text{and} \quad c_{0}^i = c_{high}^i = y - 0.33 \cdot (\varepsilon - \phi) \\
c_{low}^g = y - \varepsilon + \phi \quad \text{and} \quad c_{0}^g = c_{high}^g = y + 0.33 \cdot (\varepsilon - \phi)
\end{align*}
\]

- Constrained efficient trade
A simple model

- Assume
  - \( p = 0.5 \)
  - no contingent assets
  - no bailouts

- Default

\[
q = 0.5 \\
\begin{align*}
    b &= 1.33 \cdot \varepsilon \\
c_{\text{low}}^i &= y + \varepsilon - \phi \quad \text{and} \quad c_{\text{high}}^i = y - 0.33 \cdot \varepsilon \\
c_{0}^g &= y - \varepsilon \quad \text{and} \quad c_{\text{low}}^g = c_{\text{high}}^g = y + 0.33 \cdot \varepsilon
\end{align*}
\]

or wasted liquidity

\[
q = 1 \\
\begin{align*}
    b &= \phi \\
c_{0}^i &= y - \varepsilon + \phi \quad \text{and} \quad c_{\text{low}}^i = c_{\text{high}}^i = y + \varepsilon - \phi \\
c_{0}^g &= y + \varepsilon - \phi \quad \text{and} \quad c_{\text{low}}^g = c_{\text{high}}^g = y - \varepsilon + \phi
\end{align*}
\]

- Inefficient asset trade
A simple model

- Assume
  - \( p = 0.5 \)
  - no contingent assets
  - bailouts financed by taxing bond holders

- No default and no "wasted liquidity"
  \[ b = \varepsilon + 0.33 \cdot (\varepsilon - \phi) \]
  \[ q = 0.5 + 0.5 \cdot \frac{\phi}{\varepsilon + 0.33 \cdot (\varepsilon - \phi)} \]
  \[ \tau_{low} = 1.33 \cdot (\varepsilon - \phi) \text{ and } \tau_{high} = 0 \]
  \[ c_{low}^{i} = y + \varepsilon - \phi \text{ and } c_{0}^{i} = c_{high}^{i} = y - 0.33 \cdot (\varepsilon - \phi) \]
  \[ c_{low}^{g} = y - \varepsilon + \phi \text{ and } c_{0}^{g} = c_{high}^{g} = y + 0.33 \cdot (\varepsilon - \phi) \]

- Constrained efficient trade

- Bailouts allow for "orderly partial default" in low state
  - ex post: efficient, \( g \) appropriates entire surplus
  - ex ante: efficient, \( i \) and \( g \) both better off
A simple model

• Assume
  – $p = 0.5$
  – no contingent assets
  – bailouts financed by lump-sum taxes

• No default and no "wasted liquidity"

\[ q = 1 \]

\[ u'(y - \varepsilon + b) = 0.5 \cdot u'(y + \varepsilon + \tau_{\text{low}} - b) + 0.5 \cdot u'(y + \varepsilon - b) \]

\[ \tau_{\text{low}} = b - \phi \text{ and } \tau_{\text{high}} = 0 \]

\[ c^i_0 = y - \varepsilon + b, \quad c^i_{\text{low}} = y + \varepsilon + \tau_{\text{low}} - b \text{ and } c^i_{\text{high}} = y + \varepsilon - b \]

\[ c^g_0 = y + \varepsilon - b, \quad c^g_{\text{low}} = y - \varepsilon - \tau_{\text{low}} + b \text{ and } c^g_{\text{high}} = y - \varepsilon + b \]

• But
  – intertemporal trade is distorted: overborrowing
    * $q = 1$ even though $i$, as a whole, defaults partially in low state
  – ex-ante transfer from $g$ to $i$

• Ex ante, bailouts
  – benefit $i$ and may benefit or hurt $g$
Comments

- Paper emphasizes that bailouts may benefit creditors ex ante
  - this is not that surprising given potential benefits discussed above

- Paper assumes pre-existing debt
  - this might not be necessary
  - also, is $t = 0$ truly ex-ante if there is pre-existing debt?

- Even if bailouts hurt $g$ ex ante, there might be better policies than committing not to bailout
  - within model, make $\tau_0$ contingent on default and asset trade at $t = 0$
  - more generally, limits on public debt and macro prudential regulation

- My view: In Euro crisis
  - important liquidity/rollover component
  - transfers were probably not as large
  - official interventions helped both $i$ and $g$, possibly even from ex-ante point of view
Overall assessment

- Very interesting and informative analysis of Eurozone official lending

- Elegant, rich and flexible theoretical framework

- Look forward to next version of the paper!