XXIV Annual Conference of the Central Bank of Chile

"Emerging Markets Credibility, Foreign Investors' Risk Perceptions and Capital Flows"

Sovereign Debt Crises and Floating Rate Bonds

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Context

- Mark and Manuel are giants in the field of sovereign debt and default
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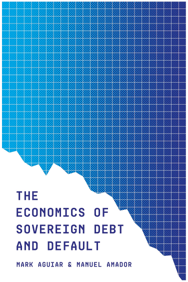

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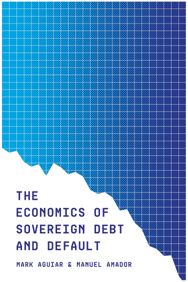

- Whatever they write on it, likely to be insightful and relevant!

Contribution and summary

- Propose new financial instrument for a sovereign borrower subject to default risk: floating rate bond
- Floating rate long bond is a long bond with a coupon indexed to interest on short bonds
- Combines desirable features of long and short bonds
  - Like long bonds immune to rollover risk
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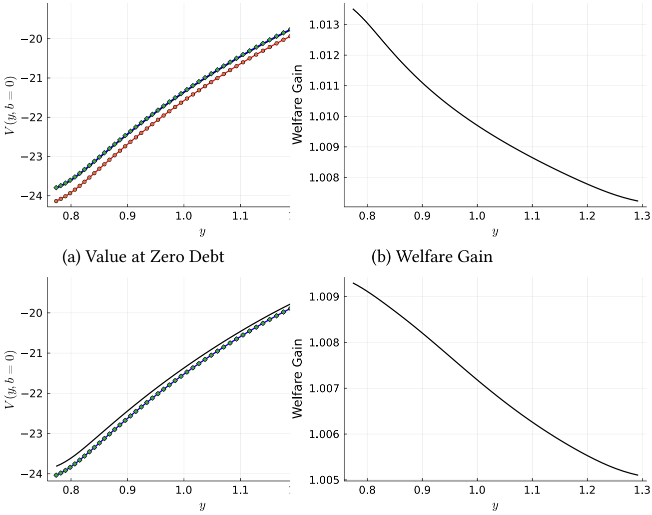
Gains from introducing Floating Rate Bonds



(a) Value at Zero Debt

(b) Welfare Gain

(c) Value at Zero Debt

(d) Welfare Gain

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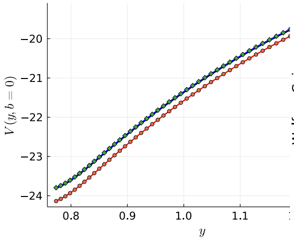

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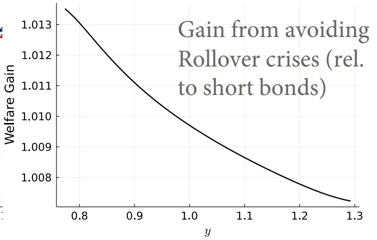

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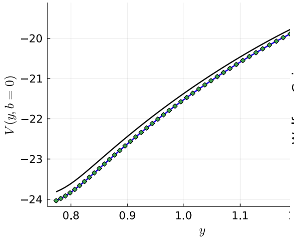

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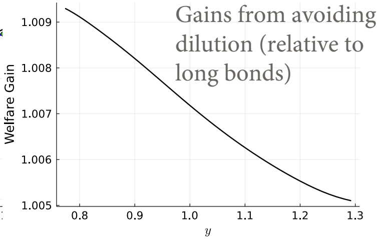

(d) Welfare Gain

In basic models sizeble gains

Discussion Outline

- A 3 period model of long and short bonds, in order to:
  - Give some additional intuition for results
  - Introduce additional role for long bonds
  - Floating rate or seniority clauses?

A 3 periods $(0, 1, 2)$ small open economy

- Preferences: standard $u(), \beta$
- World interest rate R_t^*
- Endowments (capture emerging mkt patterns)
  - 0, $y_0 = L$, start poor
  - 1: either (π) recession $(y_1 = L, R_1^* = H)$, or $(1 - \pi)$ boom $(y_1 = H, R_1^* = L)$, Spillover from N?
  - 2: $y_2 \sim F(y)$, $E(y_2) = H$, Commodity boom?
- Financial mkts
  - 0, either borrow long (L_0) or short (S_0), not both
  - 1, repay S_0,borrow S_1
  - 2, Default or repay

Default choices and prices

- Default penalty is loss of fraction α of output. Default iff

$$y_{2t}(1-\alpha) > y_{2t} - L_0 - S_1$$

- Probability of default

$$F(\frac{L_0 + S_1}{\alpha})$$

- Standard risk neutral lender

$$\begin{aligned} q_{S_1} &= \frac{1 - F(\frac{L_0+S_1}{\alpha})}{R_1^*} \\ q_{L_0} &= \frac{1 - F(\frac{L_0+S_1}{\alpha})}{R_0^* E(R_1^*)} \end{aligned}$$

Economics Features

- Role for long term debt (slightly different than in the paper):
  - In the short-short sequence when economy in recession in 1 needs high borrowing at high prices to roll over short debt. Welfare cost. Long term debt reduce need for this, provides better hedge against recession risk.

Economics Features

- Role for long term debt (slightly different than in the paper):
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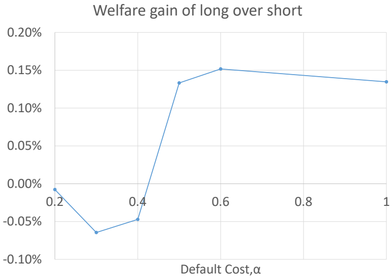
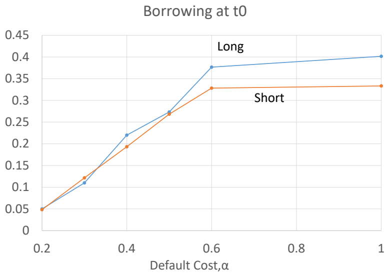
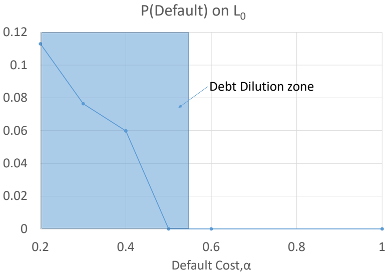
- Debt dilution:
  - Higher S_1 increases default risk (and interest rates) of long term debt, but borrowers in t_1 do not internalize this: q_{L_0} depends on $F(\frac{L_0+S_1}{\alpha})$ Externality from t_1 govt on t_0 govt. Makes long term debt "too expensive", under-borrowing, welfare cost

Long term debt and default risk







If P(default)=0, L_0 provides hedge, better than short

If P(default)>0, L_0 diluted, worst than short

Would floating rate bonds help here?

- With R^* shocks (neg. correlated with y) coupon on L_0 would increase in bad times (even in absence of default): that does not make L_0 more attractive to lenders (risk neutral), but less hedge to borrower
- Floating rate would still protect L_0 from dilution, but reduce its hedge properties!
- A bit like making mortgage payments increase as credit score goes down: helps with dilution, not with hedging, not sure a good idea for long mortgages!

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- Seniority clauses (Chatterjee and Eyigungor, 2015), might be better tool to address dilution without altering hedging properties on long bonds
- Still a puzzle why don't we see much of these instruments in sovereign markets. Maybe dilution not too big of a deal? Default not too dependent on debt levels?

Conclusions

- Sharp and extraordinarily clear paper
- Proposes a simple instrument to insulate long term debt from dilution
- Public debt management offices around the world should give it a try!