Discussion of “Can Cross-Border Financial Markets Create Good Collateral in a Crisis?”

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IMES Annual Research Conference
Bank of Japan, Tokyo, May 26, 2010
The Motivation

- Financial crises create a scarcity of generally acceptable collateral.
- Governments may lend cash on risky collateral.
- Or they may swap good for risky collateral to avoid public balance-sheet growth.
- Can markets endogenously create enough collateral?
The Formal Model

• Two countries, complete markets for contingent claims.
• In addition, Lucas-tree equity is held.
• Bonds must be collateralized by equity.
• Equity short sales must be collateralized by bonds.
• Only one Lucas tree in world, perfectly correlated with world aggregate labor output.
• Idea: Here, equity provides no diversification of labor-income risk. Functions purely as (positive or negative) collateral.
Key Constraint

\[
[p(z_{t+1}) + d(z_{t+1})] \theta(s^t) \geq -a(s^t, s^{t+1}), \forall s^{t+1}.
\]

- When \( a < 0 \), this states that equity holdings must suffice to collateralize contingent debts.
- When \( \theta < 0 \), this states that scheduled bond receipts must suffice to collateralize short equity position.
Results and Realism of the Model

• Main result is that ex post trades in debt and equity may approximate complete-markets allocation.

• The model requires tiny ratios of dividends to labor income – in first example, 0.001!

• This plus focus on very large “catastrophic” labor-income declines leads to binding collateral constraints—failure of full risk sharing.

• But in truth share of capital and other collateralizable assets (such as land) much bigger.
Results and Realism (cont’d)

• In actual crises, assets once viewed as safe collateral (e.g., MBS) become suspect.
• Demand for collateral also rises.
• As a result, credit collapses; fire-sale dynamics.
• International risk sharing fails in aggregate even for everyday shocks – this model can’t explain why.
• My interpretation of the model: As an allegory of how markets can exploit arbitrage opportunities to reduce impact of financial constraints.
• Basic idea is very clever!
The Basic Idea

• Due to collateral constraints on leverage/short positions, stochastic discount factors may not correspond to Arrow-Debreu prices $q(s^t, s^{t+1})$.

• E.g., if country 1 would like to issue more bonds for state $s^{t+1}$ but its equity collateral is too low in $s^{t+1}$, planned consumption for state $s^{t+1}$ will exceed Euler-equation level.
The Basic Idea (cont’d)

• We may also have deviations of equity price from fundamentals, the authors claim.
• Equities overvalued, they argue, when a country’s bond holdings constrain its short sales of Lucas trees.
• In that case:

\[
p(z^t) > \sum_{s^{t+1} \succeq s^t} q(s^t, s^{t+1}) \left[ p(z^{t+1}) + d(z^{t+1}) \right].
\]
The Basic Idea (cont’d)

• Suppose country 1 is hit by a big idiosyncratic negative shock to labor income.

• It can short trees, consume a bit of the proceeds, and use the rest to buy a bond profile that collateralizes its short position:

\[
\sum_{s^{t+1} \succ s^t} q(s^t, s^{t+1}) a(s^t, s^{t+1}) = \\
\sum_{s^{t+1} \succ s^t} q(s^t, s^{t+1}) \left[ p(z^{t+1}) + d(z^{t+1}) \right] < p(z^t).
\]
The Basic Idea (cont’d)

• In its turn, country 2 goes long in equity and issues bonds (“supplies safe collateral”) to country 1.
• Country 1 consumption thus cushioned.
• Country 2 smooths its relative consumption gain, which is permanent.
• Mechanism works even for persistent shocks.
• Does country 2 collateral constraint bind?
Why Can Stocks be Overvalued?

- Equity overvaluation critical. Its cause?
- “[T]he damaged country cannot make enough short positions in Lucas trees due to binding solvency constraints…. The nondamaged country that intends to spread relative gains over time is not interested in making short positions in Lucas trees at all.”
Cause of Overvaluation

• But … why should the lucky country wish to buy overpriced Lucas trees?
• Given prices, will this country not prefer to spread its relative consumption gain over time by buying rather than selling bonds?
• Perhaps the nondamaged country is so collateral-constrained that it view bonds as even more overpriced.
• I would like to see more about the foreign incentives that support the equilibrium.
Final Thoughts

• Curious that in the model, it is precisely in a crisis that equities are overvalued!
• Numerical results on the *percentage*, persistence of equity overvaluation?
• Like a giant hedge fund, the damaged country seems to exploit a small arbitrage opportunity through a huge short sale.
Final Thoughts (cont’d)

- Some intuitive discussion of how price-dividend ratios respond to shocks?
- In light of the Rietz-Barro disaster theory of the equity premium (perhaps disappearing), some more discussion of implied model premia?
- If governments distribute bonds and raise lump-sum taxes, risk sharing can be enhanced in this world. Departure from Ricardian equivalence if government can reduce human wealth with an equal increase in collateralizable financial wealth.
Final Thoughts (finalized)

• I have not commented on many aspects of the paper, such as the reformulation of the market allocation as a welfare maximization following Negishī (1960).

• The numerical solution is demanding.

• All in all, impressive technical achievement.

• All in all, stimulating insight about the channels for international risk sharing.