Discussion of

Margin Calls, Trading Costs and Asset Prices in Emerging Markets: The Financial Mechanics of the "Sudden Stop" Phenomenon

by

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Goal of the paper

Understand sudden stops as an equilibrium outome in a business cycle model with financial frictions

The frictions

Margin Requirements

Trading Costs

(Extension to open economy of Aiyagari, Gertler 1998)

Outline

- Sudden Stops
- Margin Requirements
- Alternative frictions
- Success:

  Qualitative

  Quantitative

- Extensions and suggestions

Elements of a sudden stop

1) Stop of capital inflows (Current Account Reversals)

2) Drop in local asset prices

3) Recessions

4) Devaluations

This paper focuses on (1) and (2) as a response to exogenously given (3)

Margin Requirements (Ayiagari and Gertler, 1998)

Two assets, a bond b and a share α.

A trader solves

$$\max E(\sum_{t=0}^{\infty} M_t D_t)$$

$$D_t = (d_t + q_t)\alpha_t + b_t R_t - q_t \alpha_{t+1} - b_{t+1} \quad \text{(B.C.)}$$

$$(d_t + q_t)\alpha_t + b_t R_t - D_t \geq \kappa q_t \alpha_{t+1} \quad \text{(M.C.)}$$

B.C. and M.C. imply

$$b_{t+1} \geq -(1-\kappa) q_t \alpha_{t+1}$$

$(1-\kappa)q_t\alpha_{t+1}$is the value the trader is allowed to buy on margin.

If $\kappa = 1$ no borrowing is allowed.

Ignore M.C. and consider a highly leveraged ss (high α and negative b)

- q (stock price) is present discounted value of dividends

Now impose M.C. $b_{t+1} \geq -(1-\kappa)q_t\alpha_{t+1}$

If M.C. is not satisfied can reduce D_t. Since $D_t \geq 0$ (cannot issue equity) at some point only way to increase b (buy back debt) is to reduce α (sell stock).

$$D_t = (d_t + q_t)\alpha_t + b_t R_t - q_t\alpha_{t+1} - b_{t+1} \quad \text{(B.C.)}$$

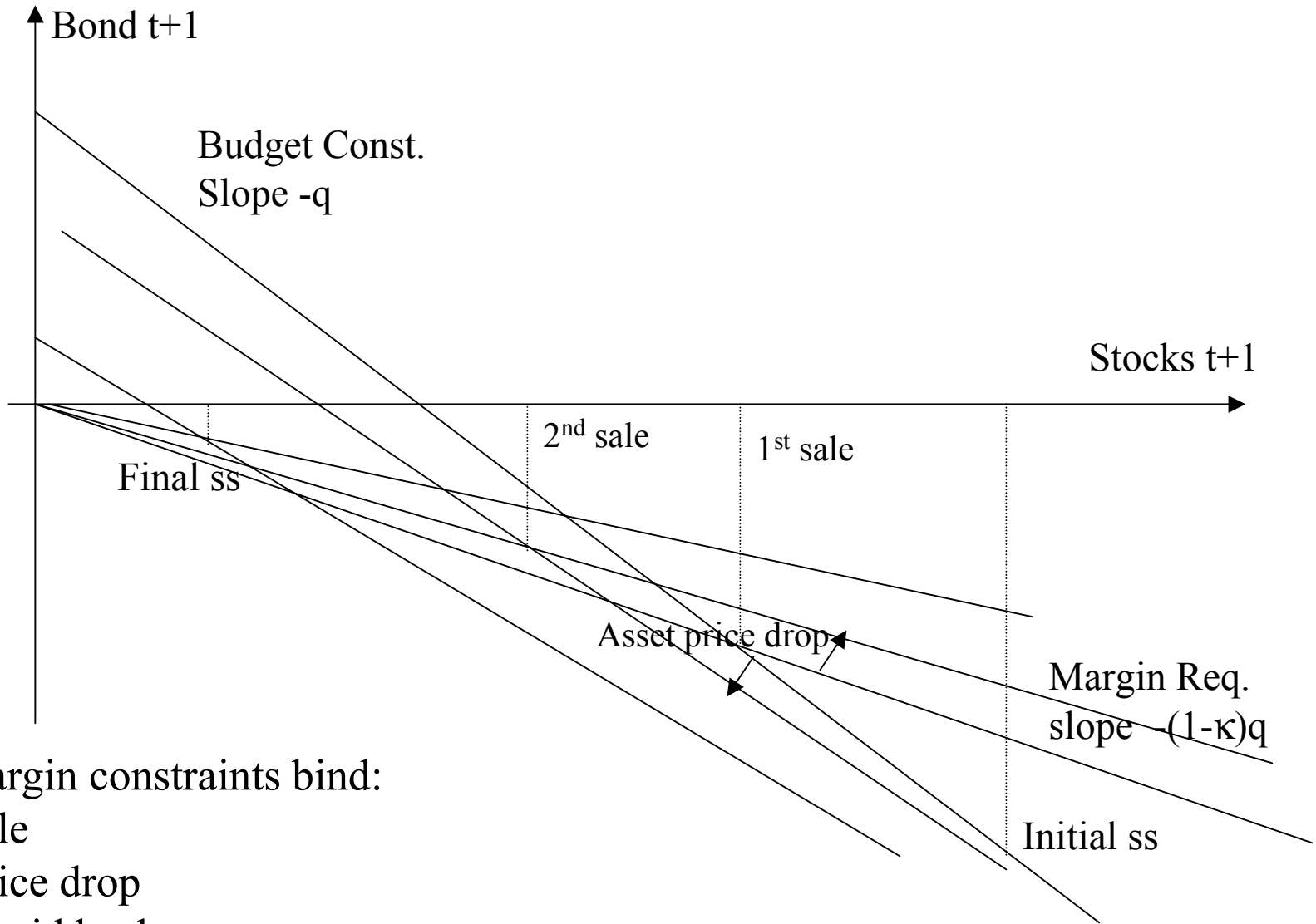
Buyers of the stock face a portfolio adjustment cost and so they buy the stock only at a discount

- q falls below the present discounted value of dividends (fire sale)

- triggers further stock sales

GRAPHICAL ANALYSIS

A graphical analysis of margin constraints
(Constant consumption/dividend)



When margin constraints bind:
-Asset sale
-Asset price drop
-Debt is paid back

Properties

- When the constraint binds consumption drop for two reasons
  - Asset fire sale that leads to welfare losses for the trader and lower long run level consumption
  - Binding constraint implies positive consumption growth, since long run consumption is lower current consumption drops even more
- In the long run the trader accumulates enough wealth so that the constraint is not binding (Multiple steady states)
- binding constraints imply volatile asset prices (overreaction) and higher premium on equity (The constraint reduce both q and c: positive comovement between equity returns and consumption)

This paper

Uses this friction in an open economy

Country (household) with endogenous labor supply

$$\max E(\sum_{t=0}^{\infty} u(D_t))$$

$$D_t = w_t l_t + (d_t + q_t)\alpha_t + b_t R_t - q_t \alpha_{t+1} - b_{t+1}$$

$$\begin{aligned} (d_t + q_t)\alpha_t + b_t R_t + w_t l_t - D_t &\geq \kappa q_t \alpha_{t+1} \\ D_t &\geq 0 \end{aligned}$$

$$y_t = \varepsilon_t K^{\gamma} l_t^{1-\gamma}, w_t l_t = \gamma y_t, d_t = (1-\gamma) y_t$$

b is international borrowing and α is the fraction of domestic stocks held by domestic households

- Domestic stock is also bought by an international bank that faces portfolio adjustment cost plus a fixed cost of trading stocks

- Endogenous discount factor to obtain unique SS

Key results

In regions of the state space (α and b) where the margin constraint is violated look at the effect of an adverse productivity shock with and without margin constraint

- Without margin constraint
  - Drop in y proportional to drop in ε, drop in c and q proportional to the decline in permanent income, no or small CA reversal
- With margin constraint
  - Same drop in y, drop in q is bigger because of the asset trading costs, drop in c is bigger because binding constraint implies positive c growth and thus lower c today, also fire sale of assets further lowers permanent income, large CA reversal

Remarks

- GHH preferences (needed to avoid that margin constraints mitigate recessions)

- Qualitative success in replicating some features of sudden stops

Alternative frictions

- Standard borrowing constraints (Atkeson and Rios Rull, 1996)

  $$b_{t+1} \geq -\bar{b}$$

  Could get CA surplus but silent on asset prices

- Income based borrowing constraints (Mendoza 2001)

  $$b_{t+1} \geq -\bar{b} y_t$$

  they do not depend on stock prices so they are not affected by news on future dividends

- Enforcement Contraints (Alvarez and Jermann, 2000, Kehoe and Perri, 2001)

$$V(b_{t+1}) = V^A(\varepsilon_{t+1})$$

Can get volatilty of asset prices but not CA reversal. In bad states the value of default (exclusion) is lowered so negative asset positions can be mantained

- Private information (Atkeson 1990)

In these models constraints are tightened in bad times (because bad times are interpreted as signals of low effort) and so could deliver similar results

- Collateral Constraints (Kiyotaki Moore)

$$b_{t+1} \geq -q_{t+1}\alpha_{t+1}$$

Quantitative analysis

Kudos to the authors for solving a tough numerical problem (High dimensional fixed point)

- Key issue

If there is region of the state space in which adverse productity shock cause large drops in consumption, whould agents ever get there (unless the constraint is slapped on them unepectedly, that is not necessarily a stupid thing to do but in this case why bother with the whole GE structure)?

Results suggest that sometimes they do. Not clear why and how often.

Is the endogenous discount factor the key reason for this?

If it is it a "quantitatively" very important aspect

- A more systematical quantitative test

In emerging markets output is more volatile than in developed economies (this model has nothing to say about it) but also consumption volatility relative to output is higher (about 50%). Can this model, simulated over a reasonable length sample, reproduce this number?

- Key calibration issue

Foreign trader adjustment cost is the crucial parameter(it is what characterizes this model). It determines asset prices volatility. Could use asset price in emerging market to calibrate that parameter and then look at implications for quantities

Extensions

Interaction between exchange rates and margin constraints in presence of dollarized liabilities

Rationale for fixing the exchange rate.