Corporate Saving in Global Rebalancing

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Novembre 14, 2013
Corporate Saving in a Global Context

- Corporate saving contributed to global imbalances
- Role of corporate saving in the post crisis?
- Theoretical analysis based on previous work
  - Bacchetta and Benhima (2013)
- Related to corporate demand for liquidity
Figure 1. Corporate Saving Rates

Figure 2. Saving and its Components

Figure 3. Investment Rates

Data source: IMF World Economic Outlook.
Propose a model with a demand for liquid assets from entrepreneurs
- Because of credit constraints

Fast growing countries with tighter constraints have larger saving

Consider an asymmetric two-country model with Emerging and Developed

BB show that this model is consistent with the evidence on global imbalances
- Emerging markets with strong growth and investment also have current account surplus
Implications of three shocks in a global imbalance environment

1. Credit crunch in Developed
2. Growth slowdown in Developed
3. Growth slowdown in Emerging

All three shocks lead to a reduction in global imbalances

But different mechanisms and different implications for world interest rate
Related literature

- Well-known papers explaining excess saving and global imbalances (see Gourinchas and Rey, 2013, for a survey)
- We share several features with the literature:
  - Imperfect financial markets
  - Limited supply of domestic financial assets (Caballero et al., 2008)

However, the literature tends to associate productivity growth with capital inflows
  - at least in the short run

Due to fundamental aspect: investment and foreign bonds are substitutes
Major feature: complementarity between investment and foreign bonds

- Framework where investment and foreign bonds are *complements*: an increase in investment goes with a capital *outflow*

- How?

- Demand for liquid assets in prevision of future need for funds (e.g., as in Woodford 1990, Holmstrom-Tirole 2001, Kiyotaki-Moore 2008)
  1. Future need for working capital
  2. Credit constraint foreseen to be binding

- The very fact of growth makes the credit constraint effective, generating capital outflows
Basic framework

- Infinitely-lived entrepreneurs and workers
- Focus on saving by entrepreneurs: Hand-to-mouth workers
- Entrepreneurs invest in private capital, illiquid not traded
- Bonds are liquid assets and are traded internationally
- Entrepreneurs face credit constraints and have a demand for liquidity
Basic mechanism: main elements

- Capital is a two-period illiquid asset and bonds are one-period liquid asset
- There is no subperiod and all markets open simultaneously
- Three crucial assumptions behind the mechanism:
  1. Time-to-build technology
  2. Working capital
  3. Credit constraints
- The rest of the model is standard
Entrepreneurs and the demand for liquidity

- Consider a single entrepreneur starting a project at $t$
- Investment in $t$:
  - Initial income: $W_t = Y_{t-1} - r_t L_t$
  - Decides investment, $K_{t+1}$, and how much to lend, $A_{t+1}$
- Production in $t+1$:
  - Hire labor $l_{t+1}$
  - Wages $w_{t+1} l_{t+1}$ has to be paid in advance: working capital
  - Produce $Y_{t+1} = K_{t+1}^\alpha (Z_{t+1} l_{t+1})^{1-\alpha}$, but production is available only in $t+2$
- Credit constrained at $t+1$: $r_{t+2} L_{t+2} \leq \phi Y_{t+1}$
- Need positive liquidity holdings $A_{t+1}$ to finance working capital
Entrepreneur’s program

- Maximize:

\[
\sum_{s=0}^{\infty} \beta^s u(c_s)
\]  

- Budget constraint in the two periods, investing at \( t \) and producing at \( t + 1 \):

\[
W_t = c_t + K_{t+1} + A_{t+1}
\]  

\[
r_{t+1}A_{t+1} = c_{t+1} + w_{t+1}I_{t+1} - L_{t+2}
\]

- Credit constraint:

\[
r_{t+2}L_{t+2} \leq \phi Y_{t+1}
\]
World economy

- In each country, two groups of entrepreneurs, starting projects at alternating dates.
- Aggregate demand for bonds:
  \[ B_{t+1} = A_{t+1} - L_{t+1} \]  \hspace{1cm} (5)
- Bonds market equilibrium:
  \[ B_{t+1} + B_{t+1}^* = 0 \]  \hspace{1cm} (6)
- Asymmetric world:
  \[ \phi^* > \phi \]
  \[ Z^* > Z \]
Emerging lends to Developed: $B_{t+1} > 0$ and $B_{t+1}^* < 0$

**Intuition:**

- In Emerging $L_{t+1}$ smaller: producing entrepreneurs have a tighter credit constraint
- In Emerging $A_{t+1}$ larger: stronger need for liquid funds
- Thus $B_{t+1} > 0$
International Spillovers

- Through the world interest rate

- Three channels:
  1. Substitution channel
  2. Collateral channel
  3. Liquidity channel

- Channels 1 and 2 are standard: an interest rate decrease is expansionary
- Channel 3: lower interest rate is contractionary
- In Emerging the liquidity channel dominates
Figure 4. Negative shock on $r$

Note: Percentage deviation from steady state.
Global Rebalancing

- First consider lower growth in Developed
- $Z^*$ declines by 1% during 10 periods

- Standard impact on Developed

- But impact on Emerging is non standard
Figure 6. Negative shock on $Z^*$

Note: Percentage deviation from steady state. Reduction of $Z^*$ by 1% over 10 periods.
Figure 6. Negative shock on $Z^*$

Note: Percentage deviation from steady state. Reduction of $Z^*$ by 1% over 10 periods.
Global Rebalancing

- Rebalancing with decline in world interest rate
- Similar impact with credit crunch in Developed
  - Permanent decline in $\phi^*$
- In contrast with standard models
- Because of liquidity channel
Global Rebalancing

- Now consider lower growth in Emerging
- $Z$ declines by 1% during 10 periods
- Negative impact in both countries
Figure 8. Negative shock on $Z$

Note: Percentage deviation from steady state. Reduction of $Z$ by 1% over 10 periods.
Figure 8. Negative shock on $Z$

Note: Percentage deviation from steady state. Reduction of $Z$ by 1% over 10 periods.
Global Rebalancing

- Also rebalancing, but increase in interest rate

- Different channel
  - Lower growth in Emerging reduces demand for liquid assets
  - The world interest rate increases
  - Affects negatively Developed (collateral channel)

- But the trade balance of Developed improves
Conclusions

- We considered a world economy with asymmetric countries, where saving is determined by entrepreneurs who need liquidity.
- We analyzed the impact of three shocks: slowdown in both countries and credit crunch in Developed.
- The impact of the shocks is different from standard models due to the liquidity channel.

- The three shocks reduce global imbalances, but have a different impact on world interest rate.
- Shocks in Developed decrease the interest rate.
- Shocks in Emerging increase in the interest rate.