Corporate Saving in Global Rebalancing

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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

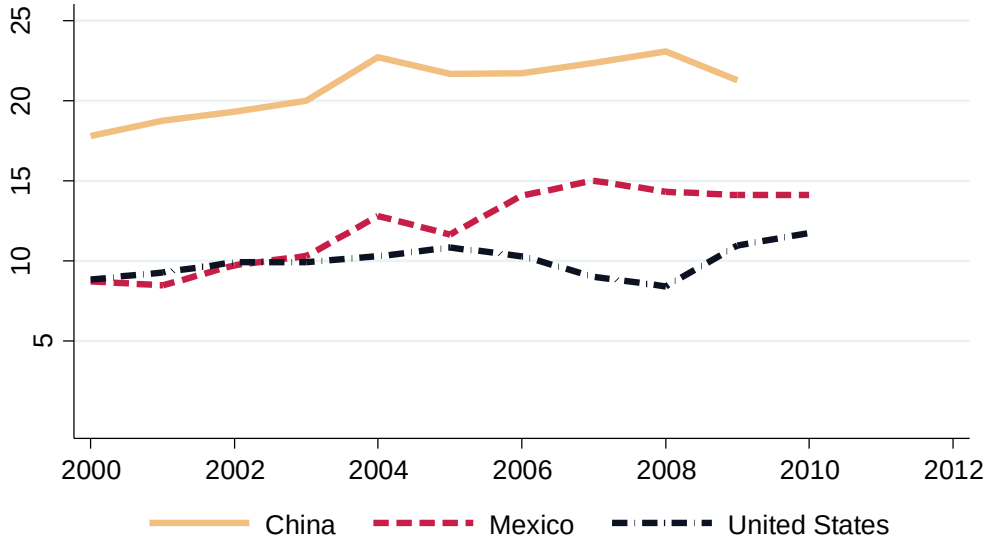


Figure 2. Saving and its Components

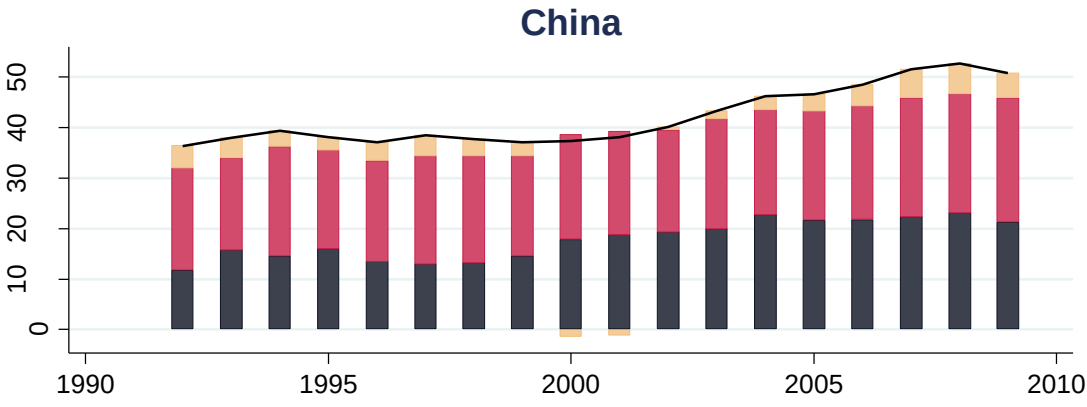
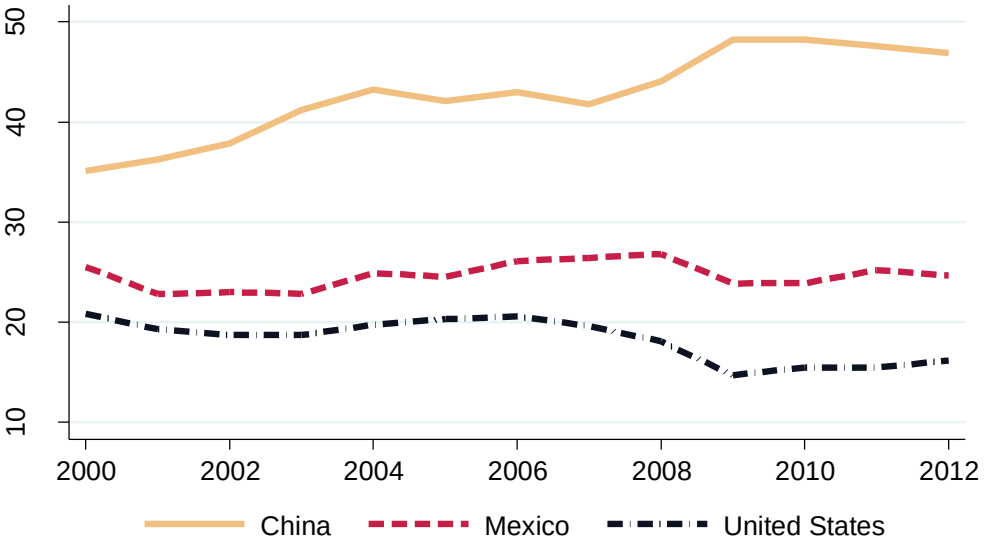


Figure 3. Investment Rates



Outline

- 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

Outline

- 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:

1. Imperfect financial markets
2. 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

here

- 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 $t+1$: $\quad r_{t+2} L_{t+2} \leq \phi Y_{t+1}$

- Need positive liquidity holdings A_{t+1} to finance working capital

Entrepreneur's program

- Maximize:

$$\sum_{s=0}^{\infty} \beta^s u(c_s) \tag{1}$$

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

$$W_t = c_t + K_{t+1} + A_{t+1} \tag{2}$$

$$r_{t+1} A_{t+1} = c_{t+1} + w_{t+1} l_{t+1} - L_{t+2} \tag{3}$$

- Credit constraint:

$$r_{t+2} L_{t+2} \leq \phi Y_{t+1} \tag{4}$$

World economy

- In each country, two groups of entrepreneurs, starting projects at alternating dates
- Aggregate demand for bonds:

$$B_{t+1} = A_{t+1} - L_{t+1} \tag{5}$$

- Bonds market equilibrium:

$$B_{t+1} + B^*_{t+1} = 0 \tag{6}$$

- Asymmetric world:

$$\begin{aligned} \phi^* &> \phi \\ Z^* &> Z \end{aligned}$$

Global Imbalances

- Emerging lends to Developed: $B_{t+1} > 0$ and $B^*_{t+1} < 0$

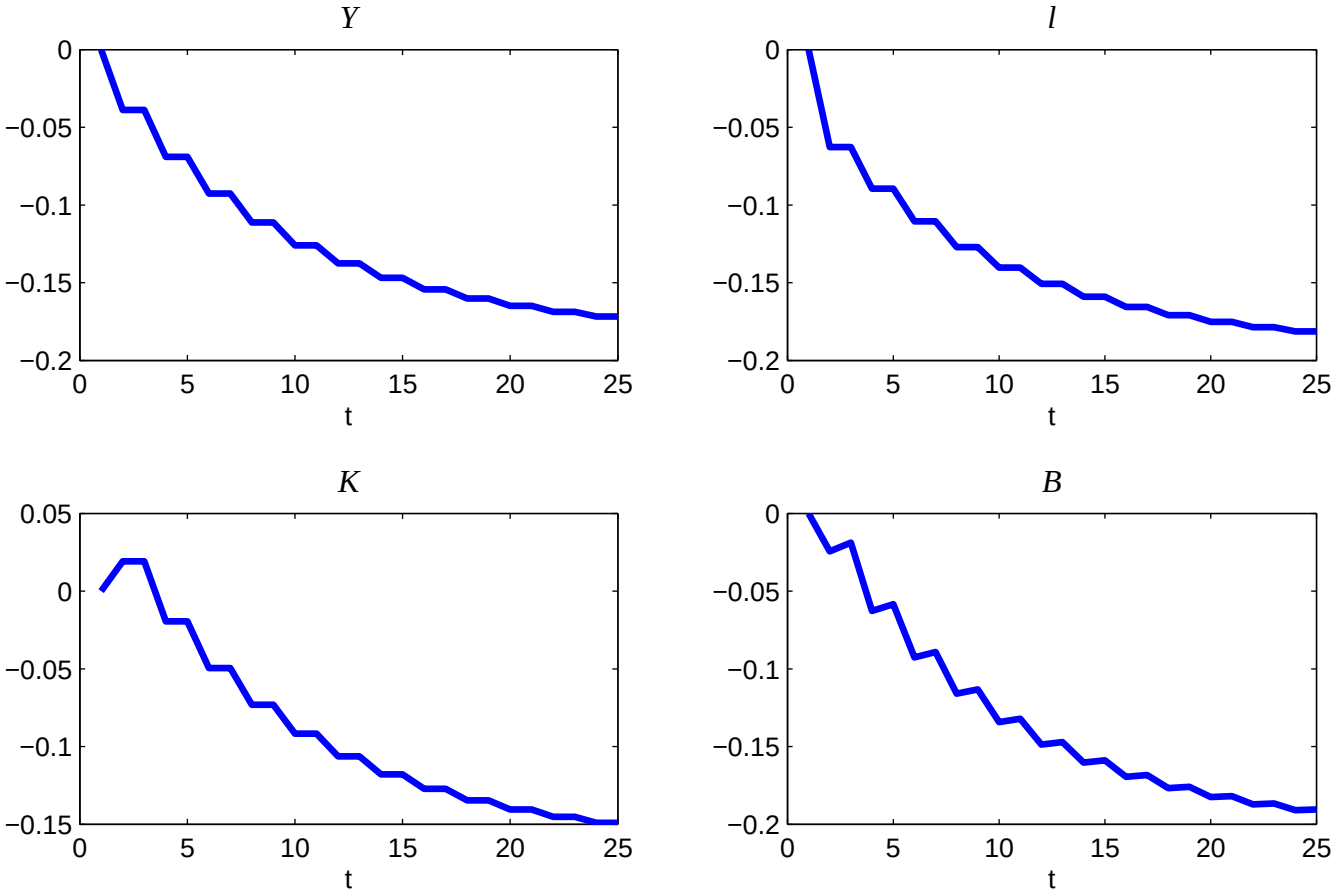
Intuition:

- 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*



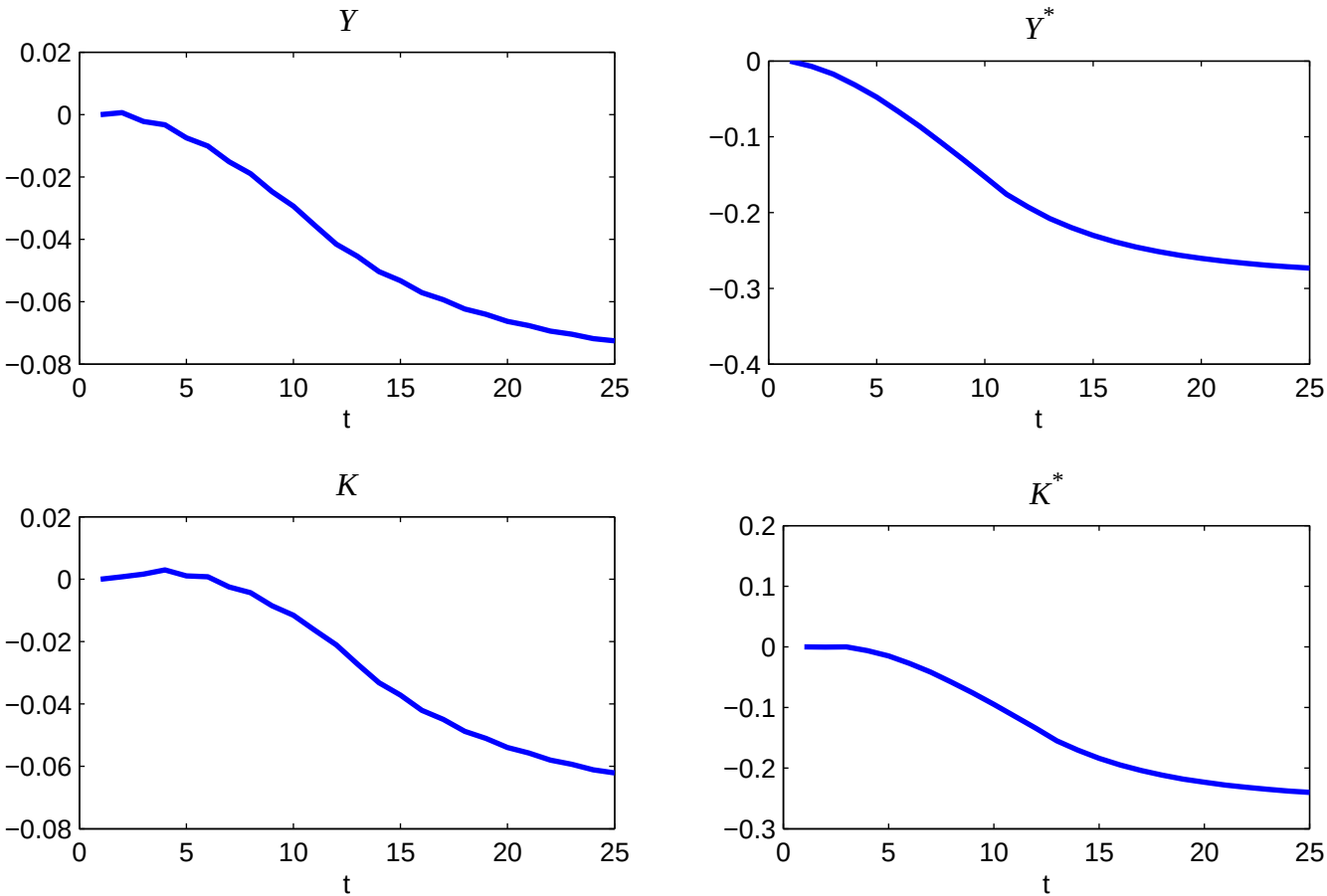
Global Rebalancing

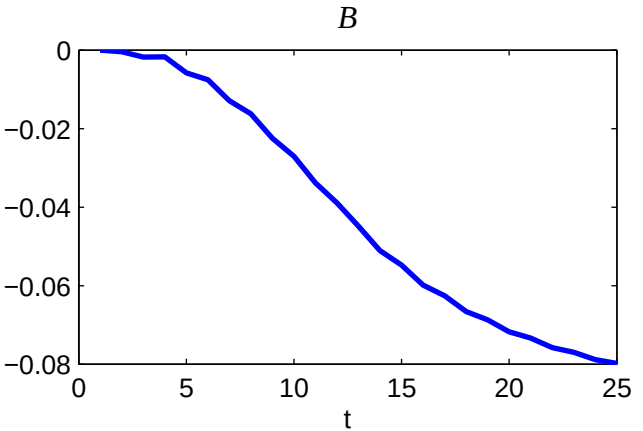
- First consider lower growth in Developed
- Z^* declines by 1% during 10 periods

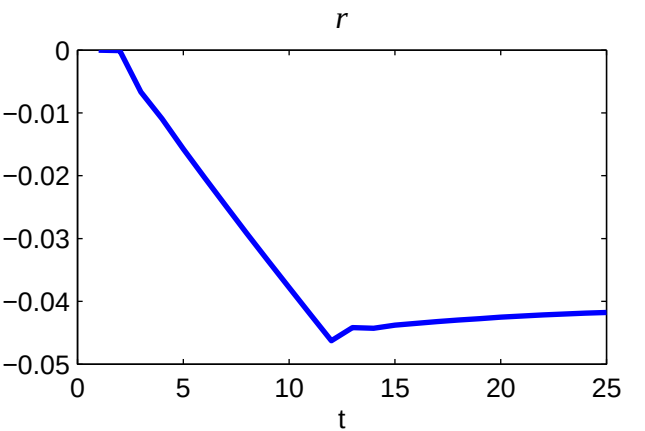
- Standard impact on Developed

- 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.

Global Rebalancing

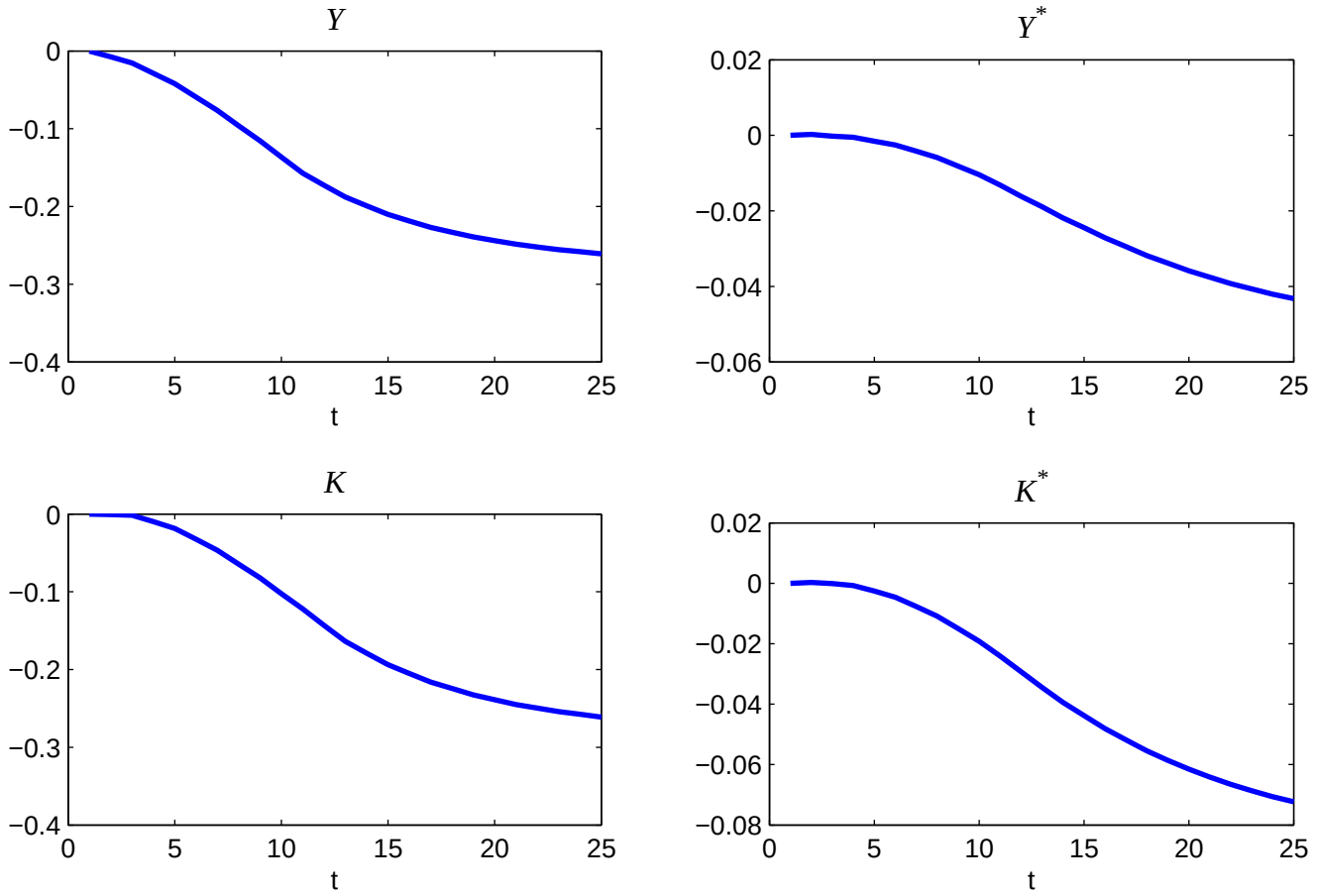
- Rebalancing with decline in world interest rate
- Similar impact with credit crunch in Developed
  - Permanent decline in ϕ^*
- In contrast with standard models
- Because of liquidity channel

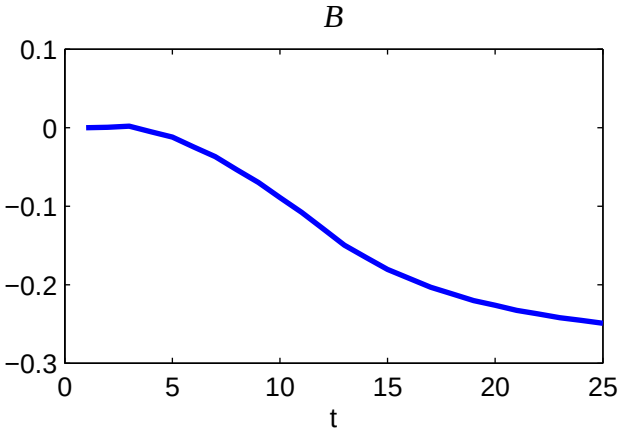
Global Rebalancing

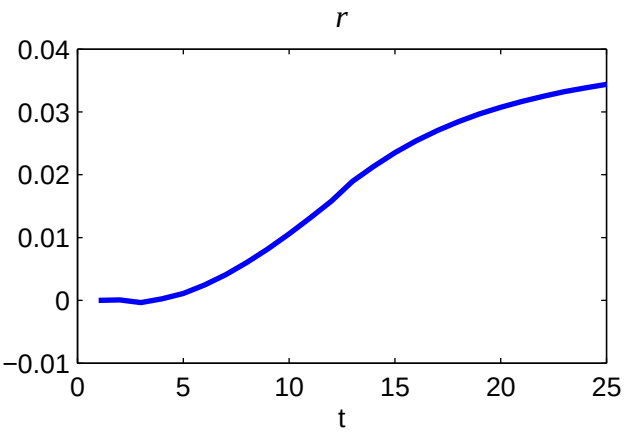
- Now consider lower growth in Emerging
- Z declines by 1% during 10 periods

- 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.

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 Ermerging increase in the interest rate