The impact of industrialized countries' monetary policy on emerging economies

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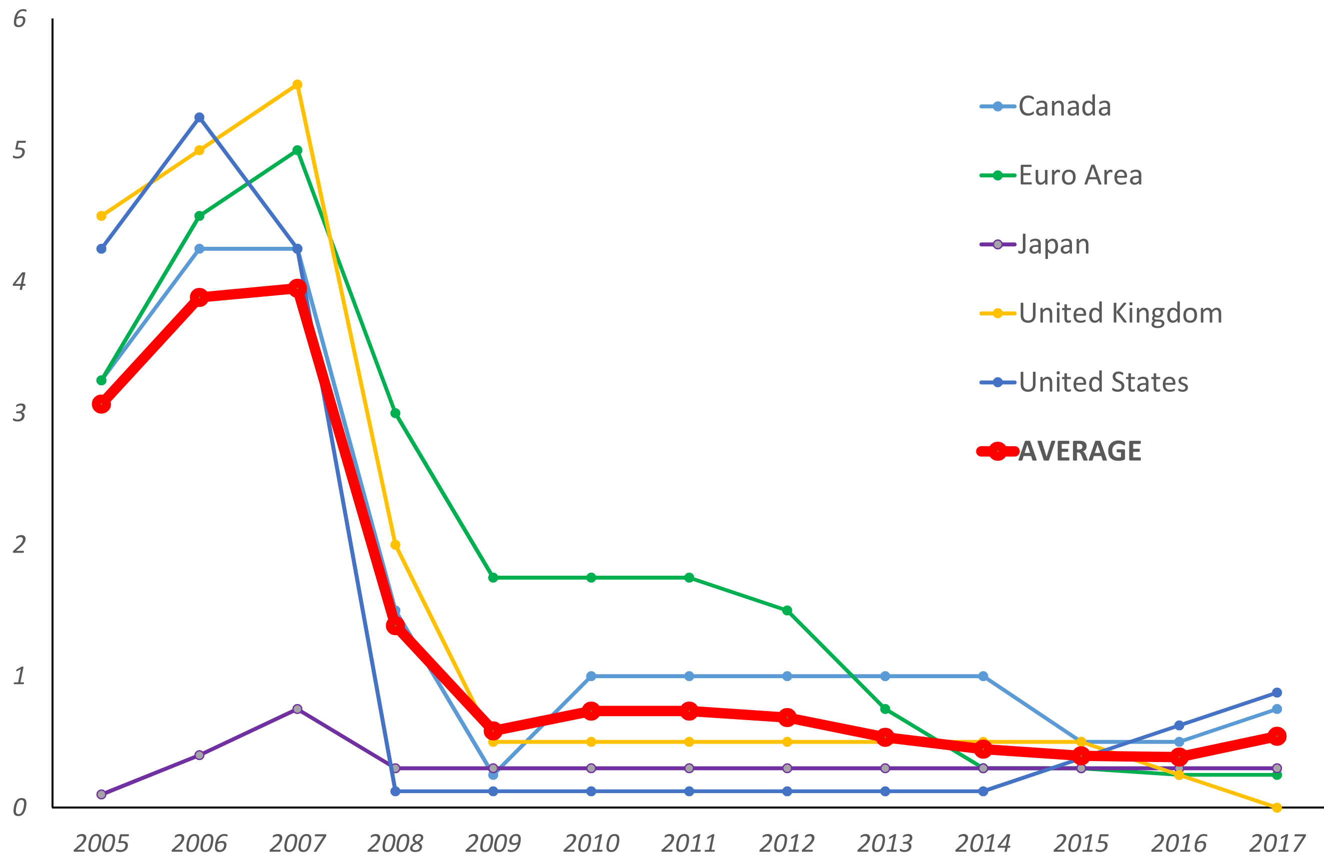
July 23, 2019



Policy rates in Industrailized Countries
6
5
4
3
2
1
0
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Canada
Euro Area
Japan
United Kingdom
United States
AVERAGE

QUESTION

What are the macroeconomic consequences of the lower interest rate policies for Emerging Countries? In particular,

- macroeconomic growth;
- macroeconomic stability.

CONVENTIONAL VIEW

- Lower interest rates in industrialized countries should attract inflows of capital (or reduce outflows) in emerging countries.

- Inflows of capital should reduce domestic interest rates and stimulate economic activity.

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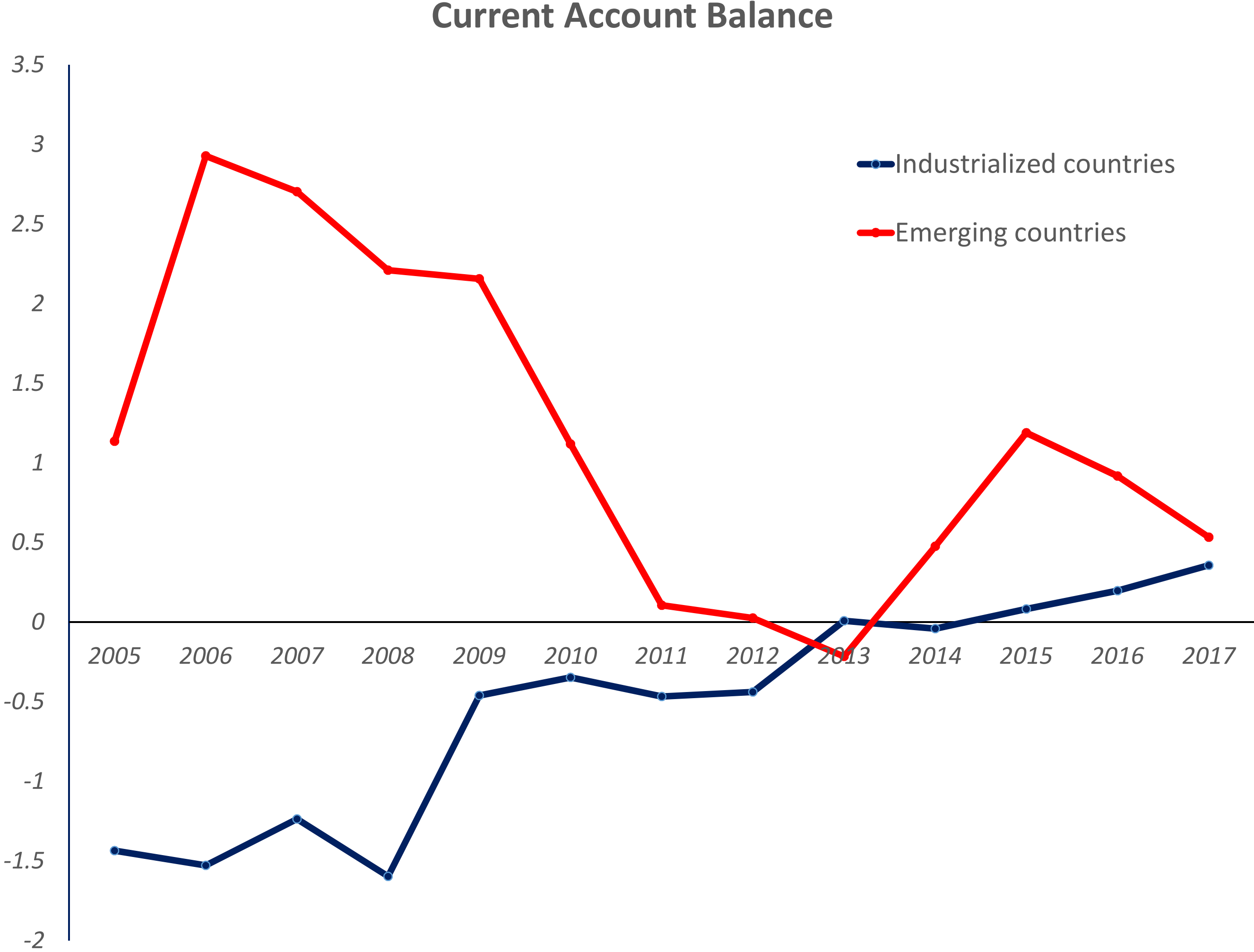
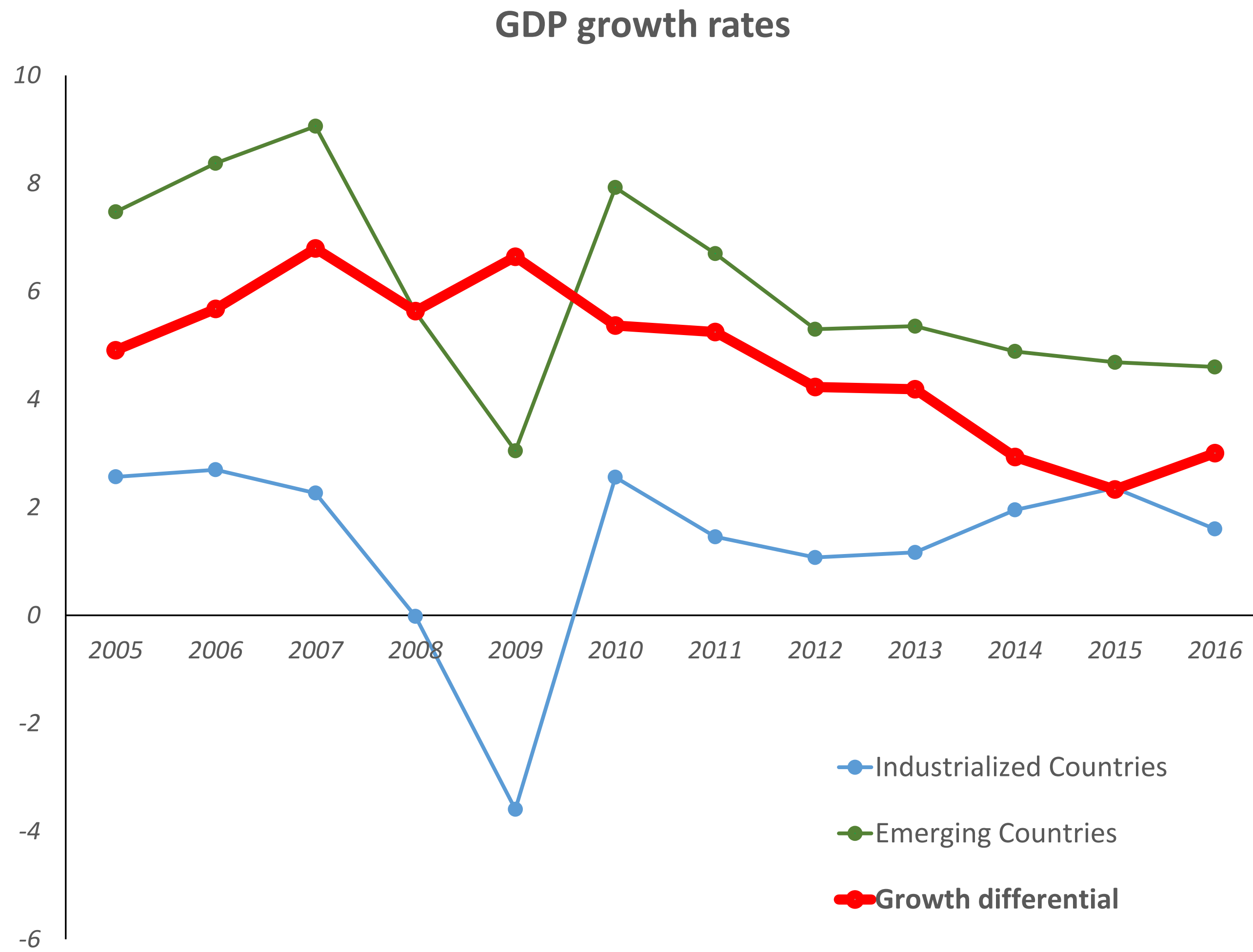
- Inflows of capital should reduce domestic interest rates and stimulate economic activity.
- **Is this consistent with the data?**

Indeed, capital flows reverted toward emerging countries



However, no signs of macroeconomic benefits



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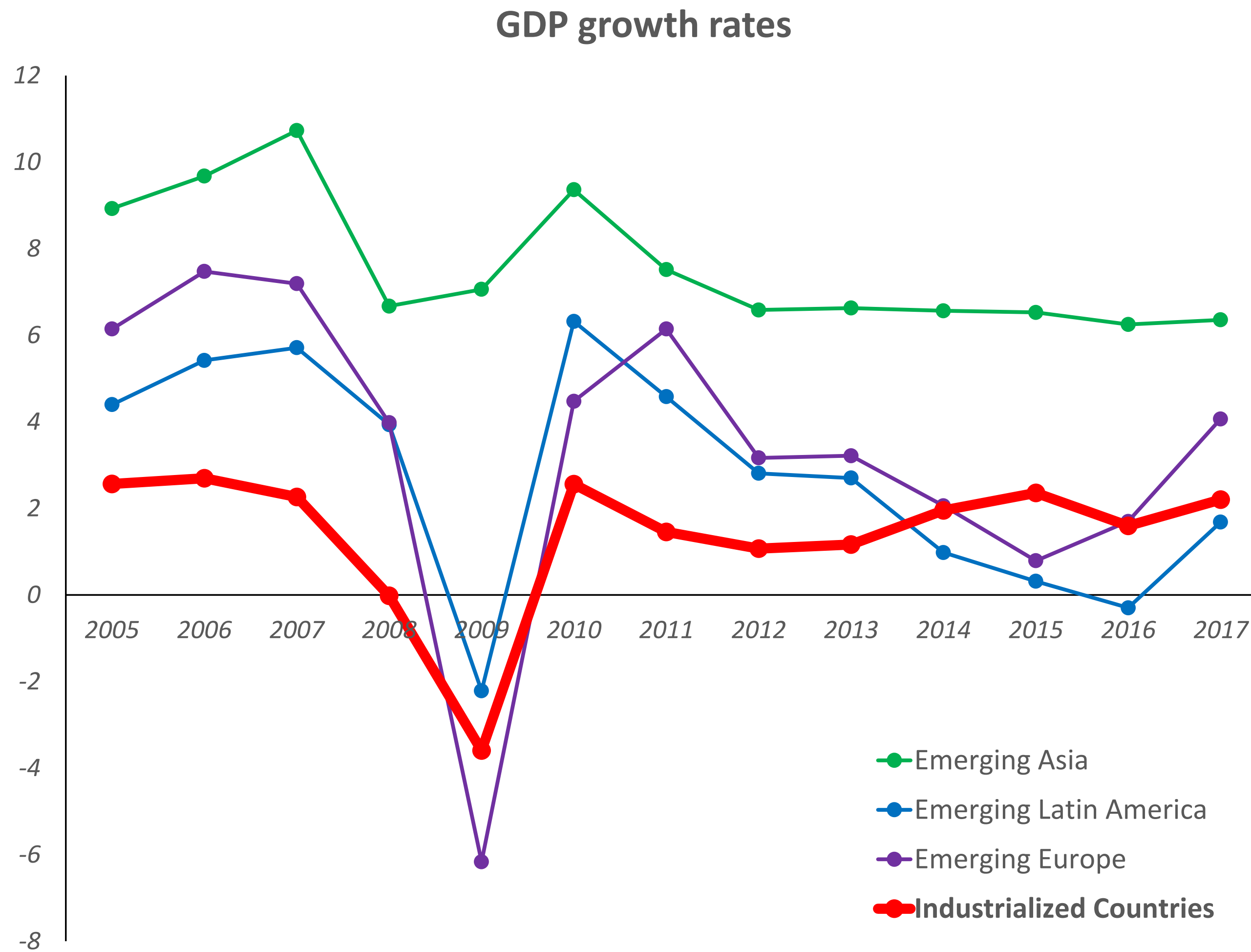


Could low interest rates have negative effects?

- The conventional view is based on the idea that low interest rates reduce the cost of capital which encourages investments and economic activity.

- However, low interest rates also discourage savings, which is typically neglected by the conventional view.

IN THIS PAPER

1. I study the macroeconomic impact of lower interest rates using a small open economy model representative of emerging countries.

2. The model features uninsurable production risks that lead to precautionary savings.

3. Importantly, because of production risks, macroeconomic activity depends on the financial wealth held by producers.

4. The model also features occasional financial crises that allows me to study macroeconomic stability.

Summary of results

- Lower interest rates
  - reduce the financial wealth held by savers;
  - increase the leverage of borrowers.
- Lower financial wealth held by savers discourages production.
- Higher leverage of borrowers could increase macroeconomic instability.

Two-sector open economy model

1. **Production sector (operated by entrepreneurs)**

2. **Household sector (suppliers of labor)**

1. Production sector

- Continuum of entrepreneurs with utility $E_0 \sum_{t=0}^{\infty} \beta^t \ln(c_t^i)$

- Technology $F(z_t^i, h_t^i) = z_t^i h_t^i$

  h_t^i = Input of labor
  z_t^i = Idiosyncratic shock observed **after** choosing h_t^i. $\mathbb{E} z_t^i = \bar{z}$

- Entrepreneurs hold 'domestic' bonds, b_{t+1}^i, and 'foreign' bonds, f_{t+1}^i. Domestic bonds are defaultable with repayment $\tilde{b}_{t+1}^i \leq b_{t+1}^i$.

$$c_t^i + q_t^b b_{t+1}^i + q_t^f f_{t+1}^i = \tilde{b}_t^i + f_t^i + (z_t^i - w_t) h_t^i \;\equiv\; a_t^i$$

Optimal entrepreneur's policy

$$h_t^i = \phi(w_t)(\tilde{b}_t^i + f_t^i)$$

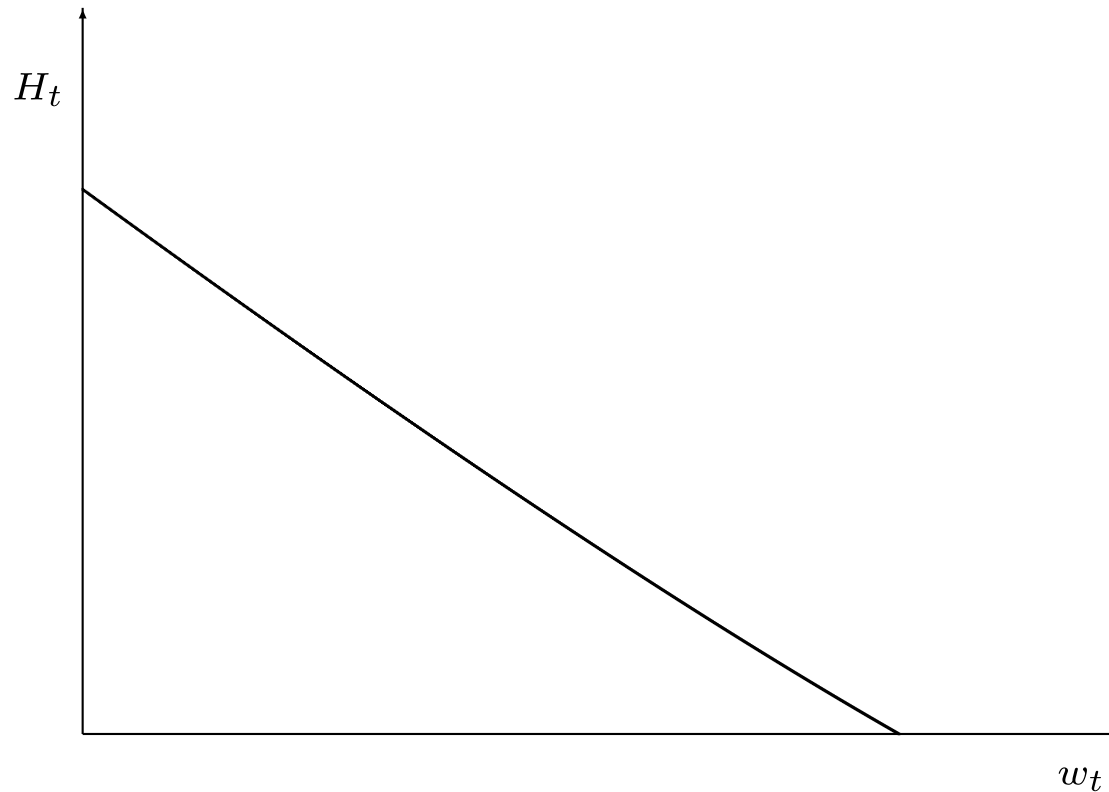
$$c_t^i = (1-\beta)a_t^i$$

$$q_t^b b_{t+1}^i + q_t^f f_{t+1}^i = \beta a_t^i$$

Where ϕ_t satisfies $\mathbb{E}_z \left\{ \frac{z - w_t}{1 + (z - w_t)\phi_t} \right\} = 0.$

Aggregate demand of labor

$$H_t = \phi(w_t) \underbrace{\int_i (\tilde{b}_t^i + f_t^i)}_{\text{Financial wealth}}$$



2. Household sector

- Continuum of households with utility $\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \left(c_t - Ah_t\right)$

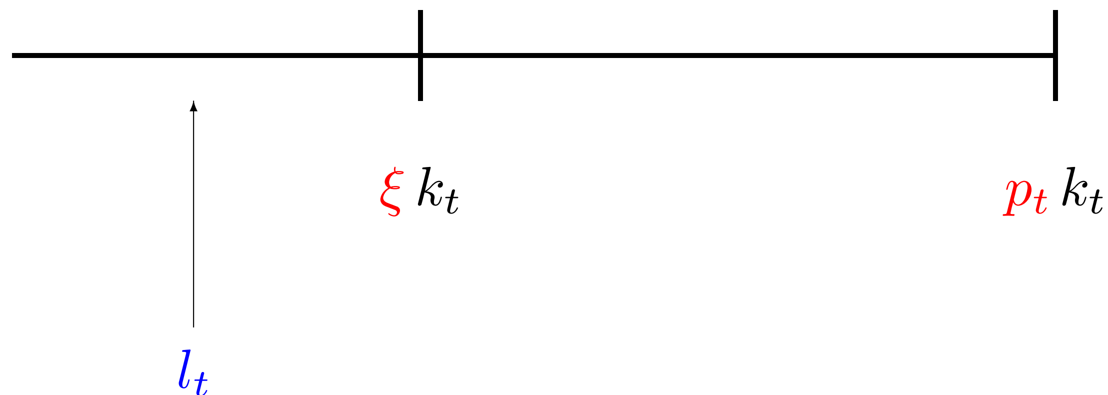
- Households hold k_t units of houses, available in fixed supply $\overline{K}$, each producing α. In normal times houses are traded at price p_t.

- Households enter the period with defaultable debt l_t.

- With some probability λ, the recovery rate drops to $\xi < p_t$.

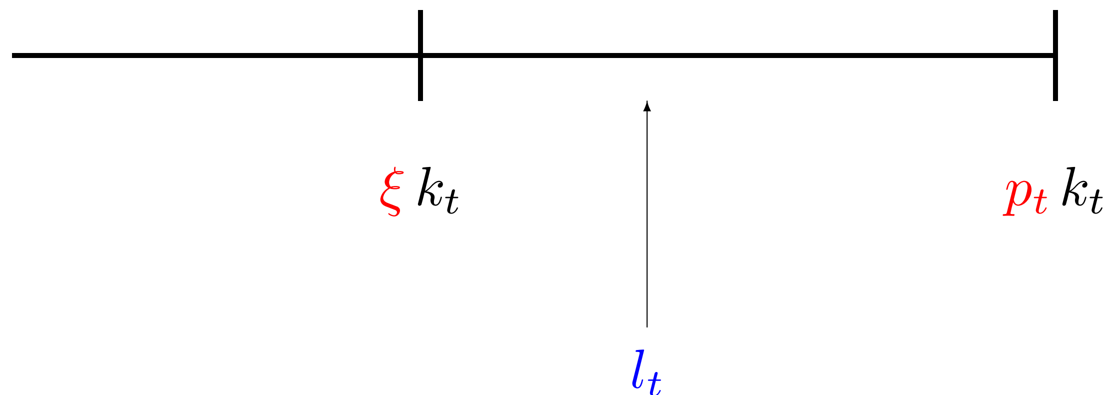
LOW LEVERAGE (No default)

l_t = Liabilities; Liquidation value $= \begin{cases} \xi k_t, \\ p_t k_t, \end{cases}$



HIGH LEVERAGE (Possibility of default)

l_t = Liabilities; Liquidation value $= \begin{cases} \xi k_t, \\ p_t k_t, \end{cases}$



2. Household sector (continue)

- First order conditions for labor:

$$w_t = A$$

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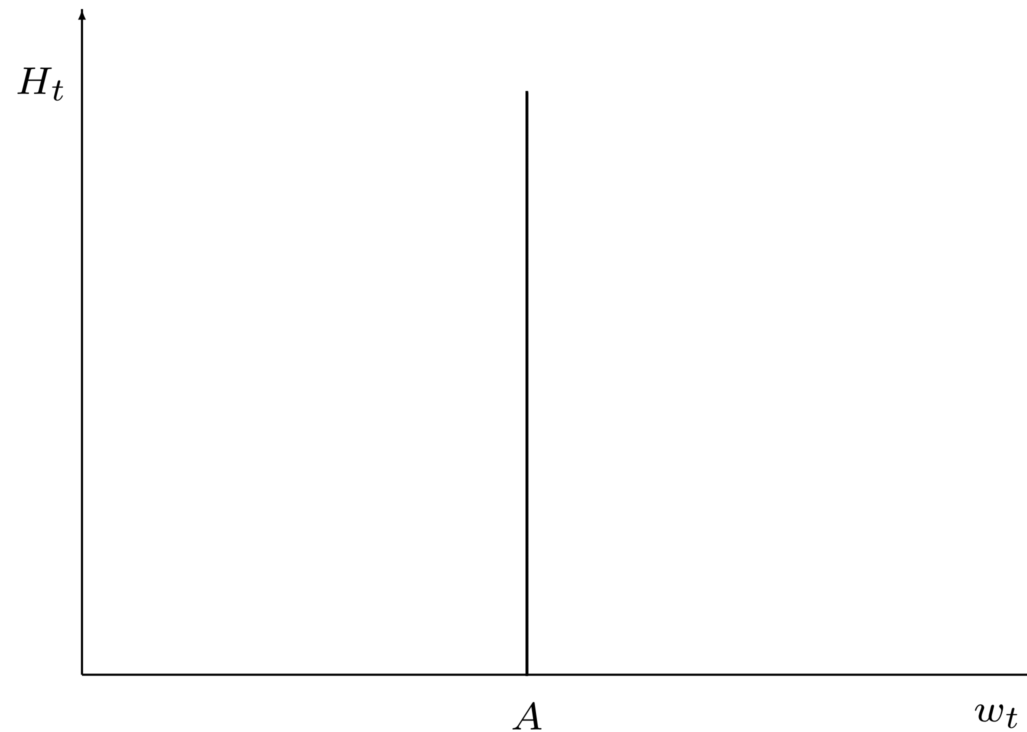
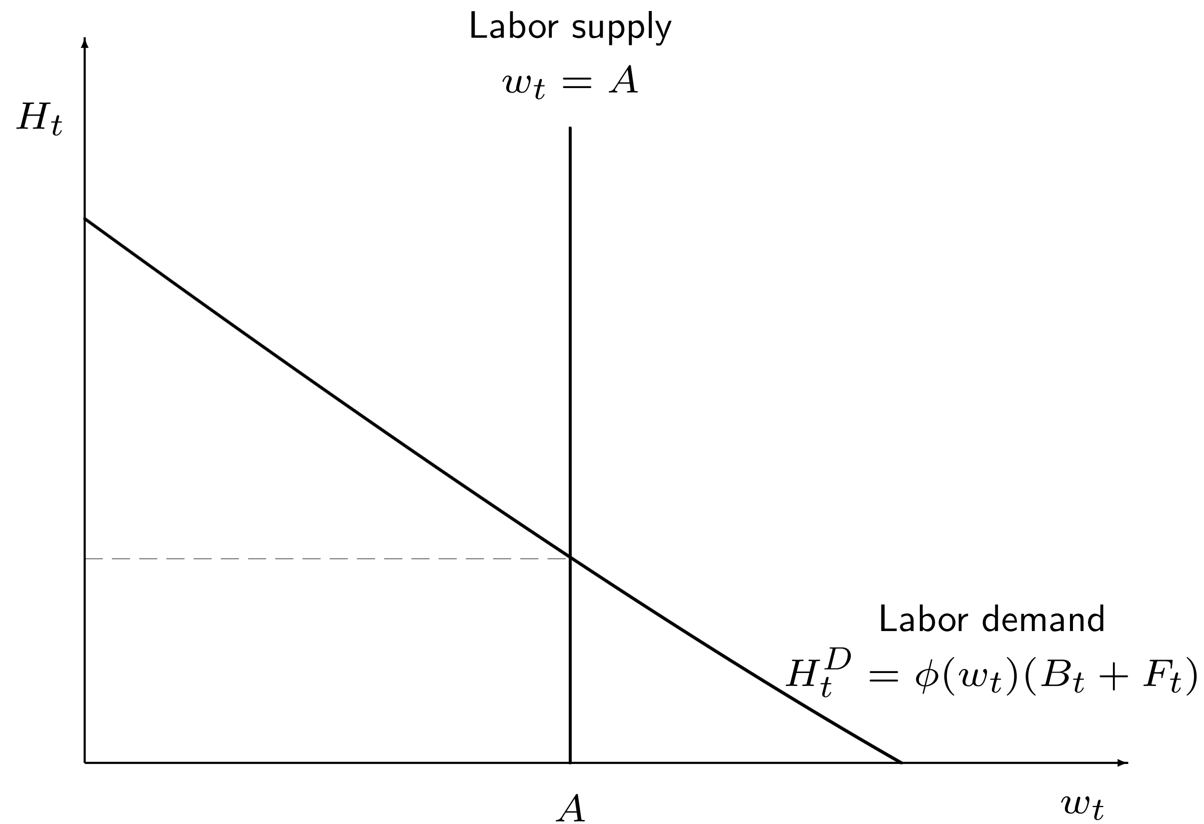
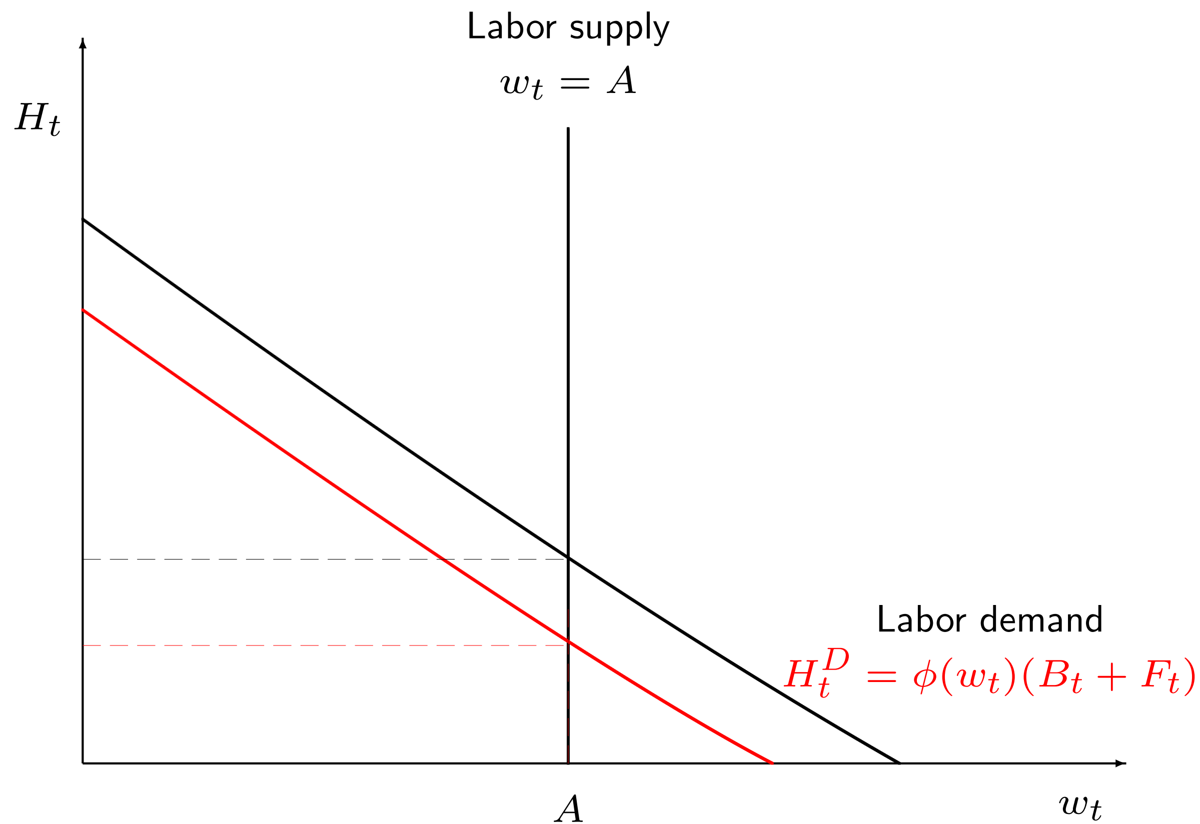


LABOR MARKET EQUILIBRIUM (Beginning-of-period)



LABOR MARKET EQUILIBRIUM (Beginning-of-period)
(With a financial crisis)

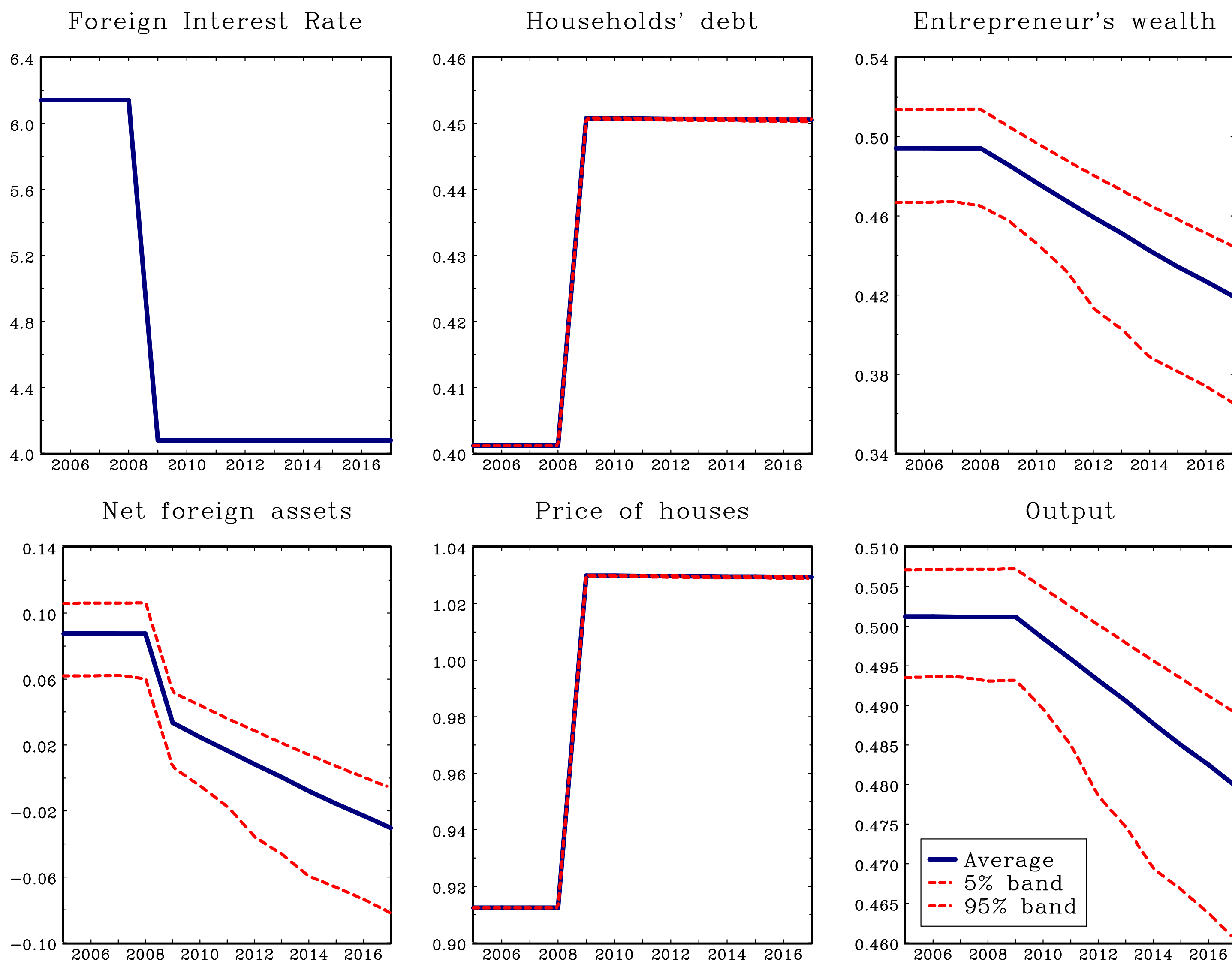


Consequences of lower interest rates in industrialized countries

- Producers (entrepreneurs) save less: $B_t + F_t$ drops implying lower production.

- Households borrows more: B_t increases implying greater macroeconomic instability.

- Since $B_t + F_t$ drops while B_t increases, F_t must drops (lower outflows of capital).


Repeated simulations
Foreign Interest Rate
6.4
6.0
5.6
5.2
4.8
4.4
4.0
2006 2008 2010 2012 2014 2016
Households' debt
0.46
0.45
0.44
0.43
0.42
0.41
0.40
2006 2008 2010 2012 2014 2016
Entrepreneur's wealth
0.54
0.50
0.46
0.42
0.38
0.34
2006 2008 2010 2012 2014 2016
Net foreign assets
0.14
0.10
0.06
0.02
−0.02
−0.06
−0.10
2006 2008 2010 2012 2014 2016
Price of houses
1.04
1.02
1.00
0.98
0.96
0.94
0.92
0.90
2006 2008 2010 2012 2014 2016
Output
0.510
0.505
0.500
0.495
0.490
0.485
0.480
0.475
0.470
0.465
0.460
2006 2008 2010 2012 2014 2016
Average
5% band
95% band

CONCLUSION

- Lower interest rates in industrialized countries reverted the outflows of capital from emerging countries.

- However, this does not appear to have generated positive macroeconomic benefits for emerging countries.