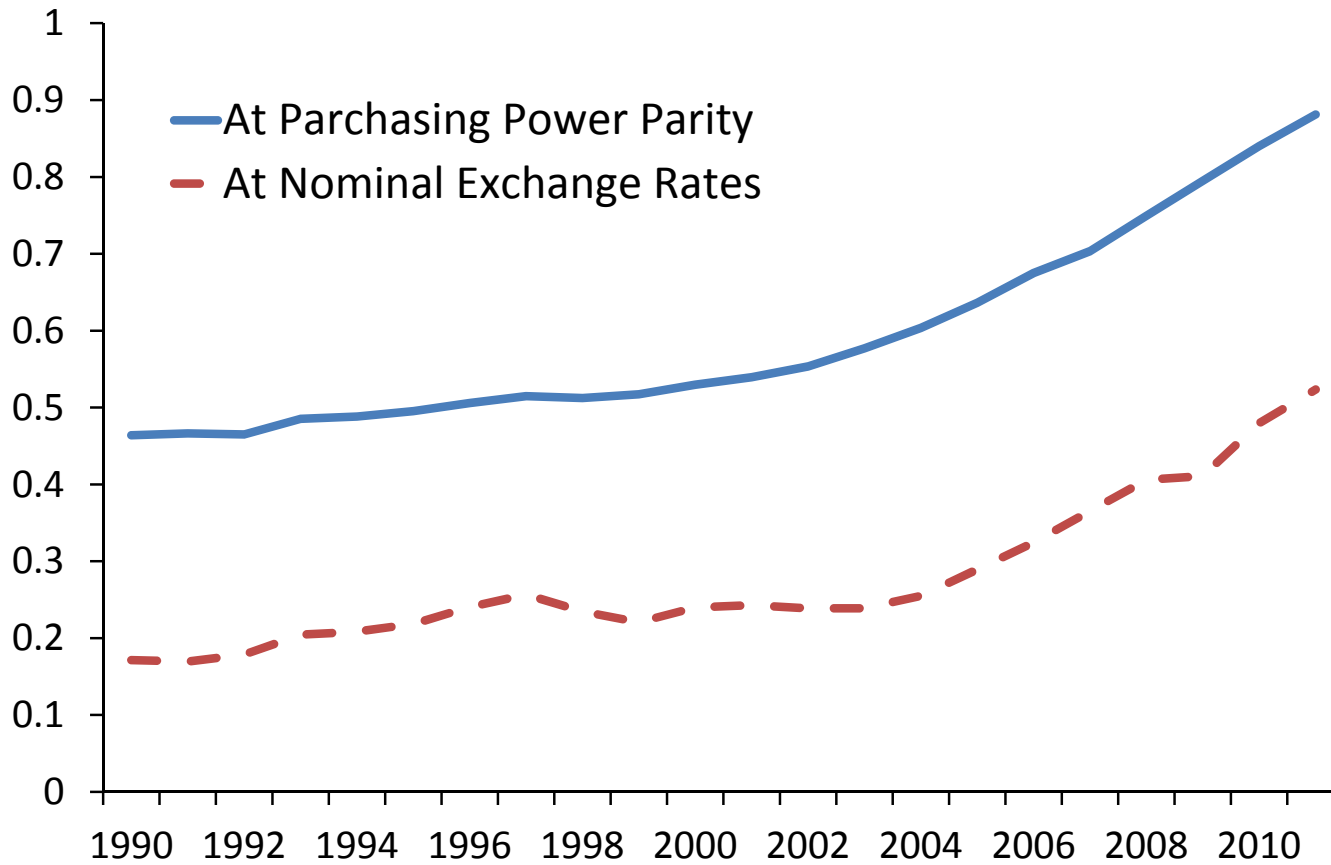


# **The growth of emerging economies and global macroeconomic stability**

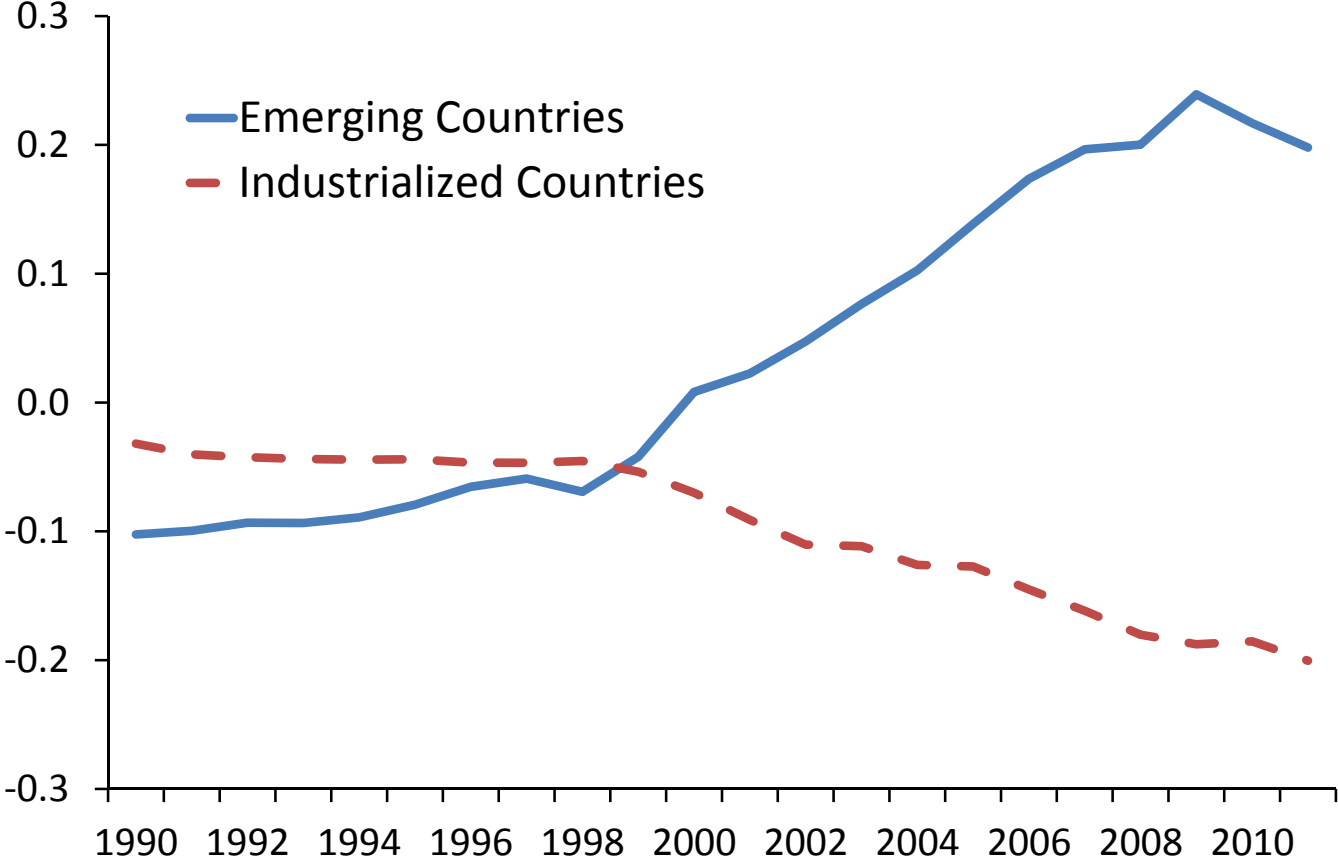
Vincenzo Quadrini  
University of Southern California

December 13, 2014

## GDP of Emerging Countries over Industrialized Countries



# Net Foreign Position in Debt and Reserves (Percent of GDP)



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## QUESTION

How does the imbalance between emerging and industrialized countries affect the financial and macroeconomic stability of (especially) industrialized countries?

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## ADDRESSING THE QUESTION

1. I develop a model where **banks** are essential for financial intermediation.
2. The model generates financial crises induced by **self-fulfilling expectations** about the liquidity of the banking sector.
3. Bank crises have real effects through the '**bank liability channel**'.
4. I then use the model to study how the increase in demand for bank liabilities from **Emerging Economies** affects macroeconomic stability.

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# WHAT IS THE ROLE OF BANKS?

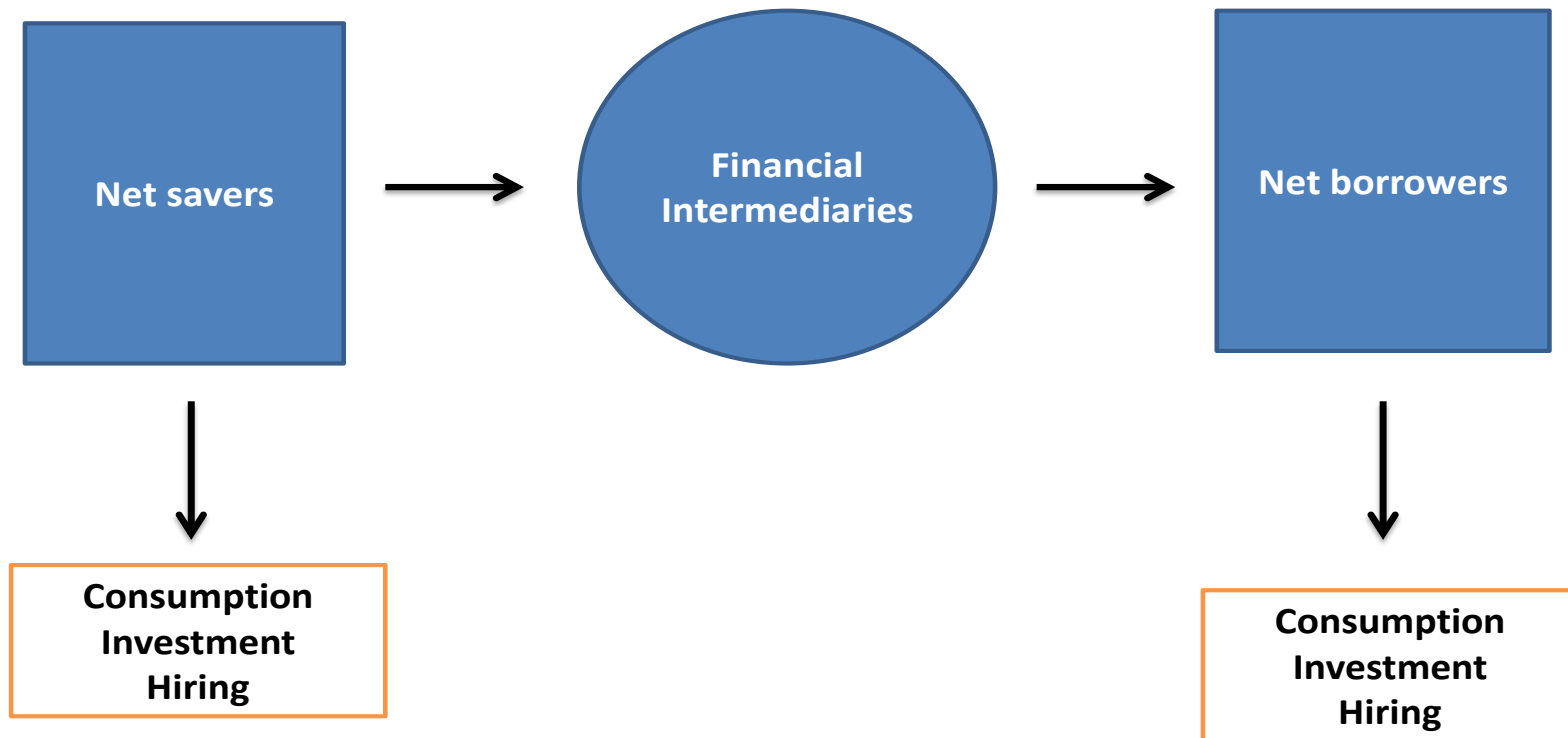
## 1. Providing credit

- When banks face financial difficulties, it becomes more difficult for nonfinancial borrowers to finance investment and hiring.  
*(Bank Lending Channel).*

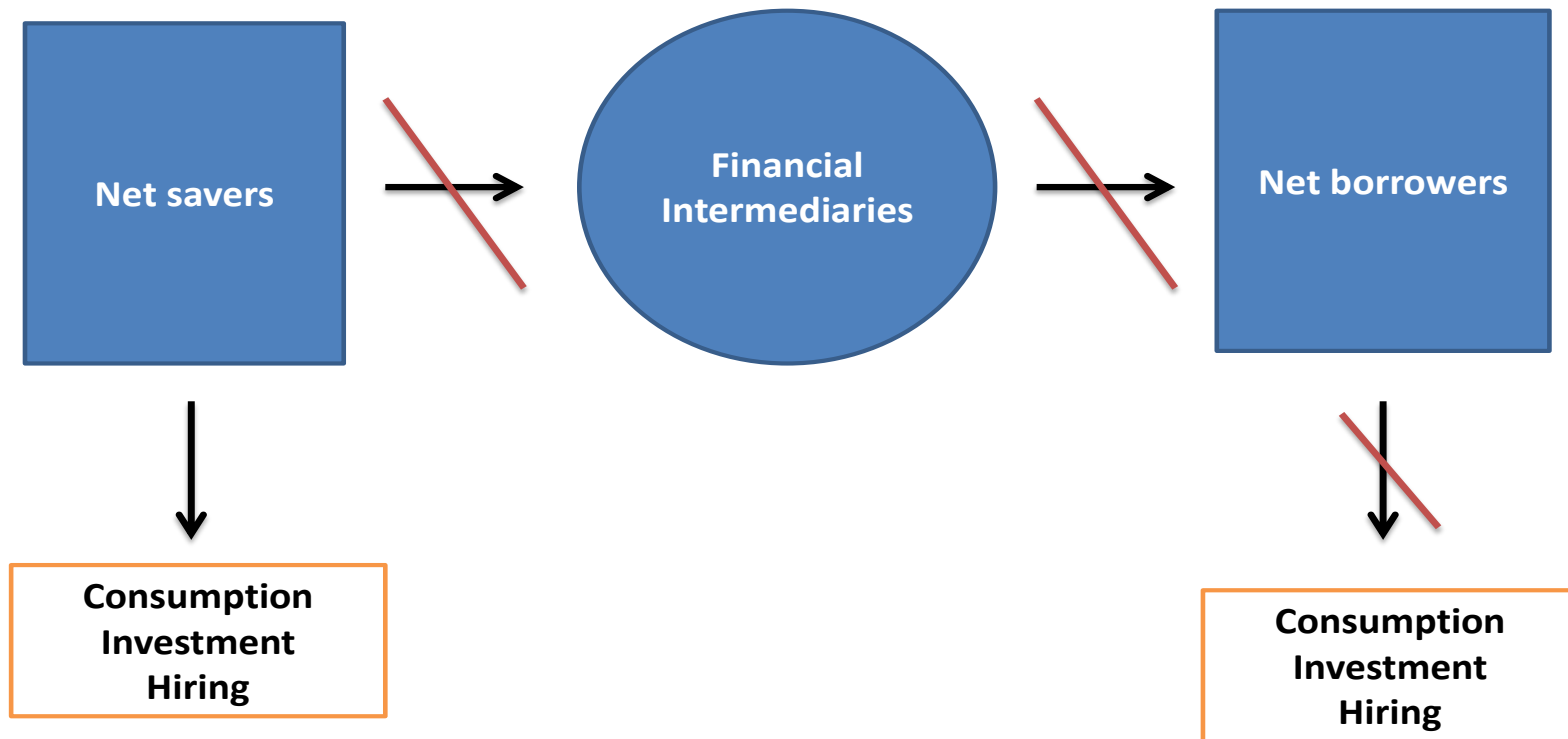
## 2. Issuing liabilities (*assets held by nonfinancial sector*)

- When banks face financial difficulties, the issuance of liabilities or the value of the outstanding liabilities fall. As a result, agents in the nonfinancial sector hold less financial assets for insurance purpose and are less willing to take risks, reducing investment and hiring.  
*(Bank Liabilities Channel).*

# BANK LENDING CHANNEL

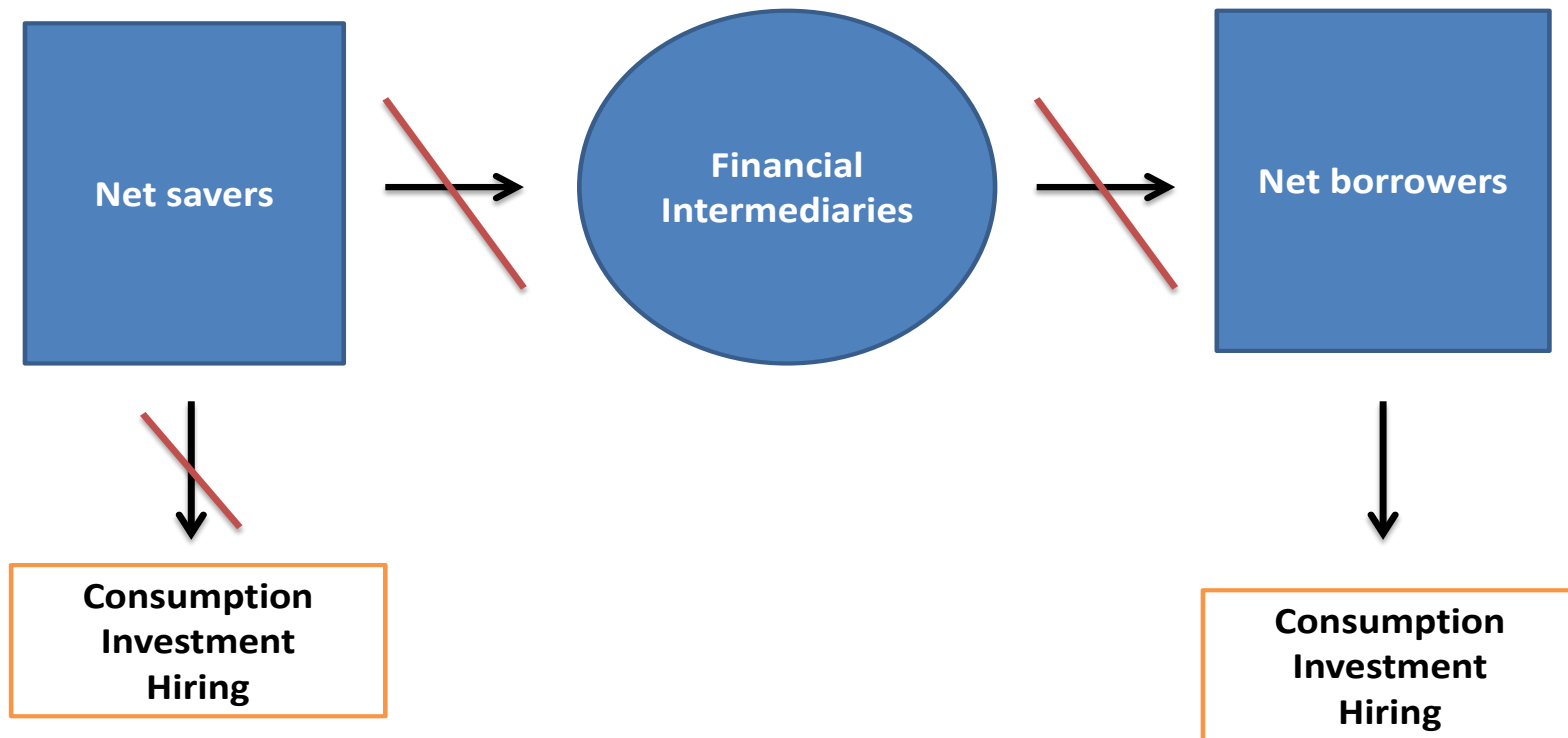


# BANK LENDING CHANNEL





# BANK LIABILITIES CHANNEL



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# THREE SECTORS MODEL

1. Entrepreneurial sector
2. Workers sector
3. Financial intermediation sector

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# 1. Entrepreneurial 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  $h_t^i$ .
- They can buy bonds  $b_{t+1}^i$ . The budget constraint is

$$c_t^i + \frac{b_{t+1}^i}{R_t^b} = (z_t^i - w_t)h_t^i + b_t^i \equiv a_t^i$$

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## Optimal entrepreneur's policy

$$h_t^i = \phi(w_t)b_t^i$$

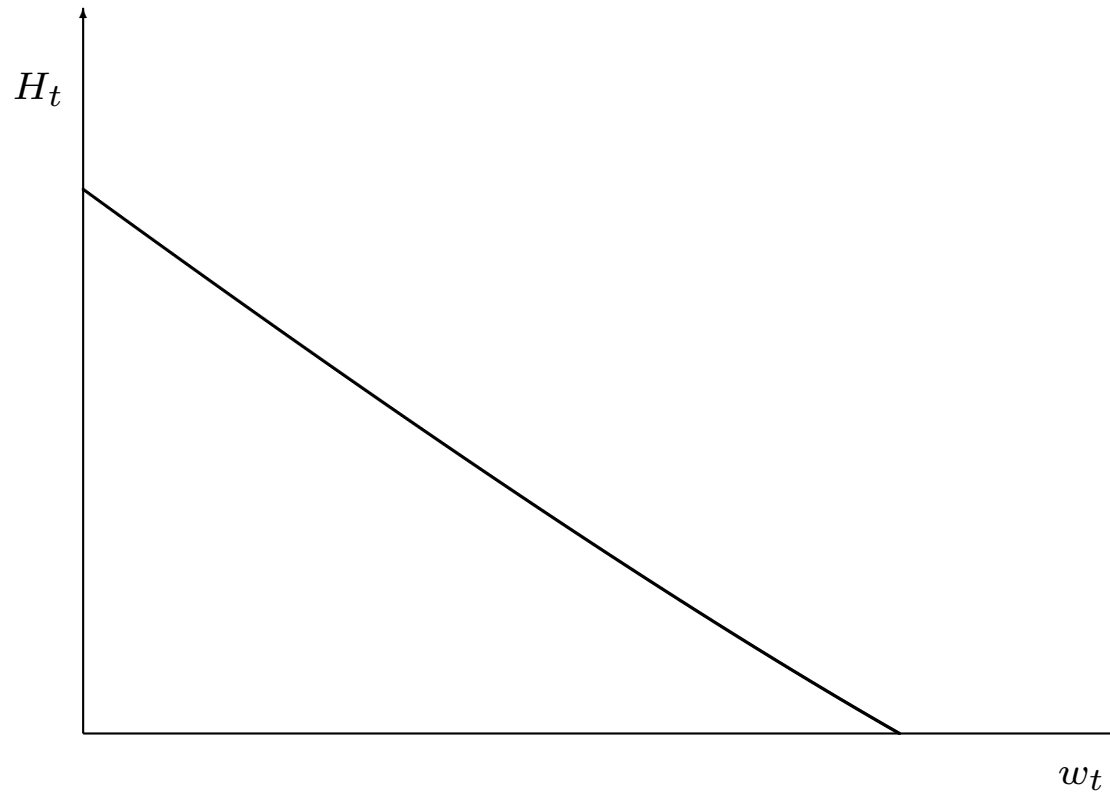
$$c_t^i = (1 - \beta)a_t^i$$

$$\frac{b_{t+1}^i}{R_t^b} = \beta a_t^i$$

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## Aggregate demand of labor

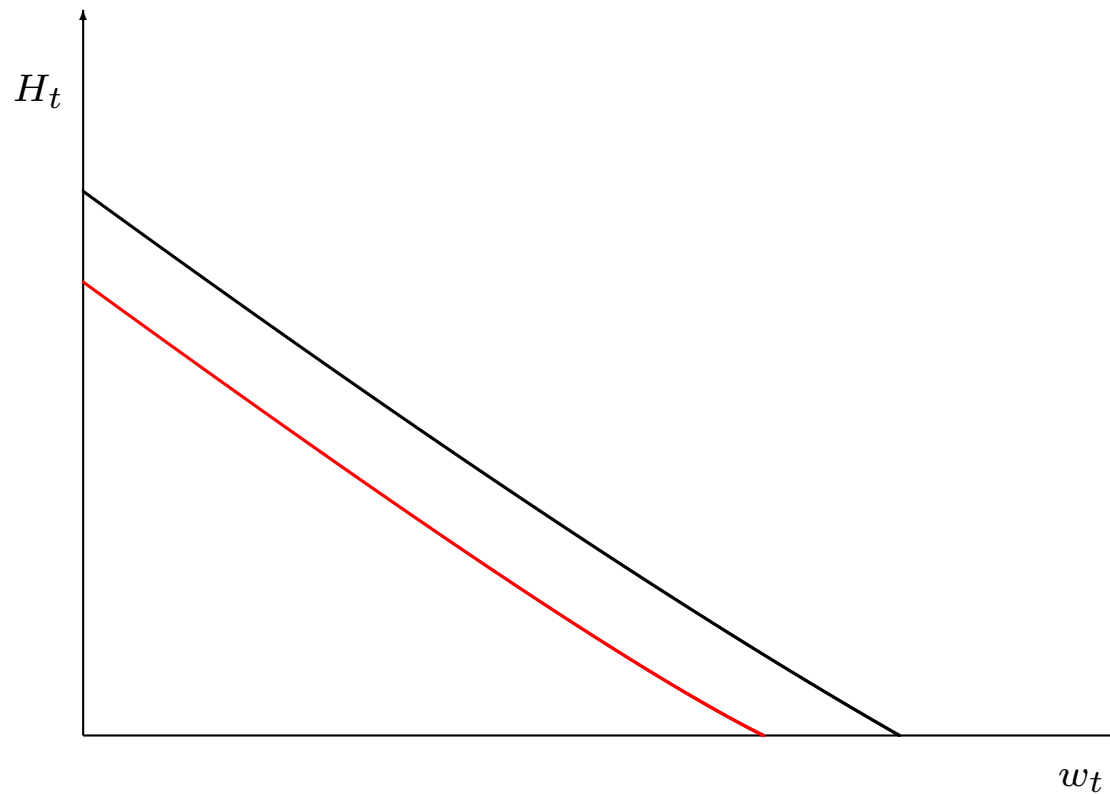
$$H_t = \phi(w_t) \underbrace{\int_i b_t^i}_{\text{Financial wealth}}$$



---

## Aggregate demand of labor

$$H_t = \phi(w_t) \underbrace{\int_i b_t^i}_{\text{Financial wealth}}$$



---

## 2. Workers sector

- Continuum of workers with utility  $\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \left( c_t - \alpha \frac{h_t^{1+\nu}}{1+\nu} \right)$
- They can borrow subject to the borrowing constraint

$$\frac{l_{t+1}}{R_t^l} \leq \eta$$

- First order conditions for workers:

$$\alpha h_t^\nu = w_t$$

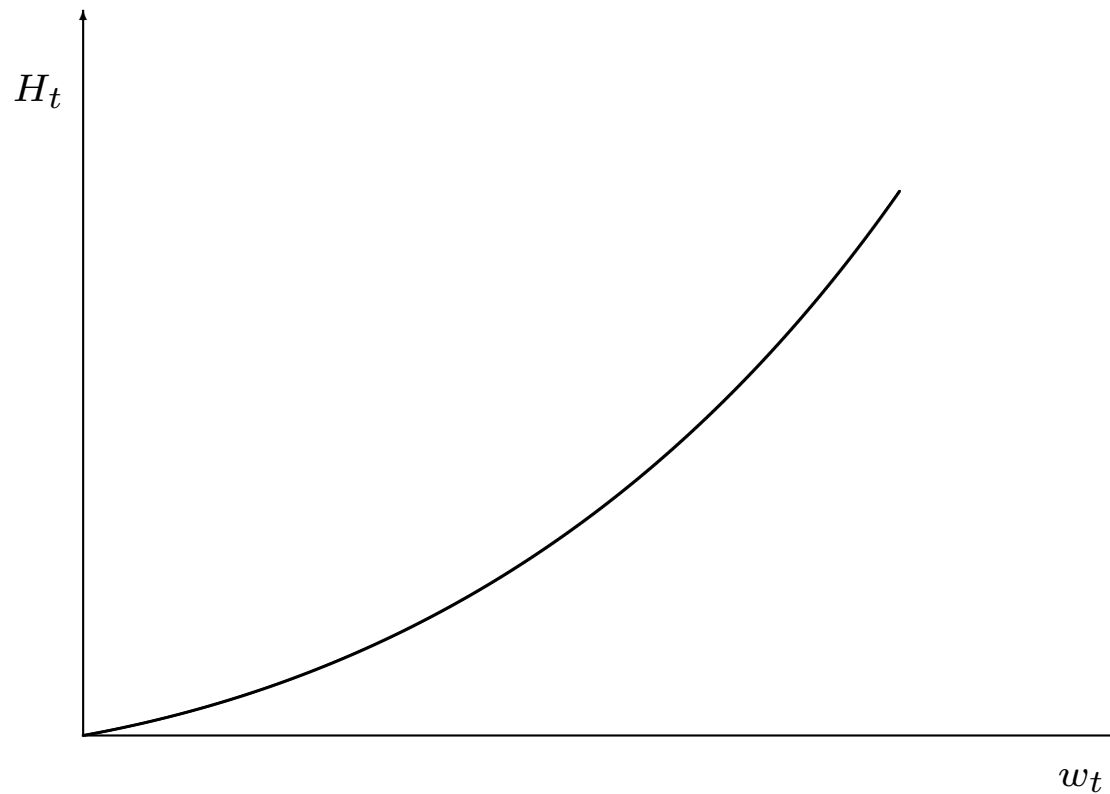
$$1 = \beta R_t^l (1 + \mu_t)$$

---

## 2. Workers

### Aggregate supply of labor

$$H_t = \left(\frac{w_t}{\alpha}\right)^{\frac{1}{\nu}}$$



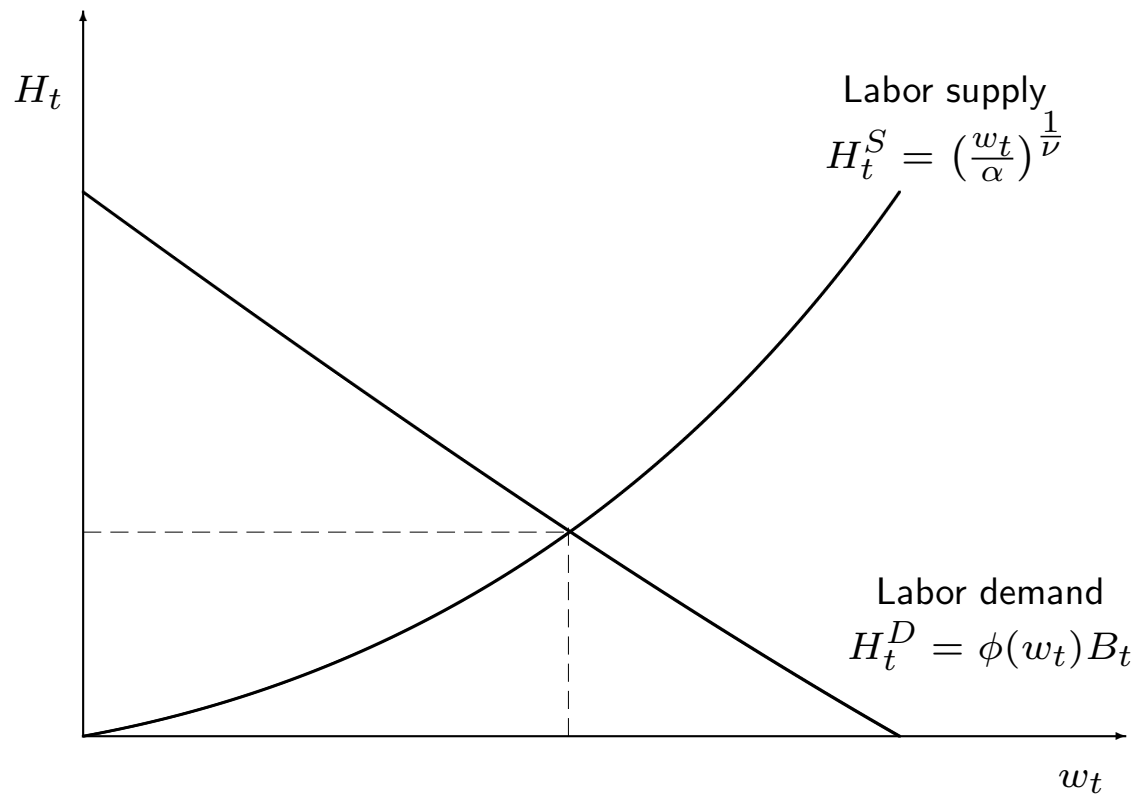


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**EQUILIBRIUM**  
**WITHOUT INTERMEDIATION**  
**(Borrowing and lending is direct)**

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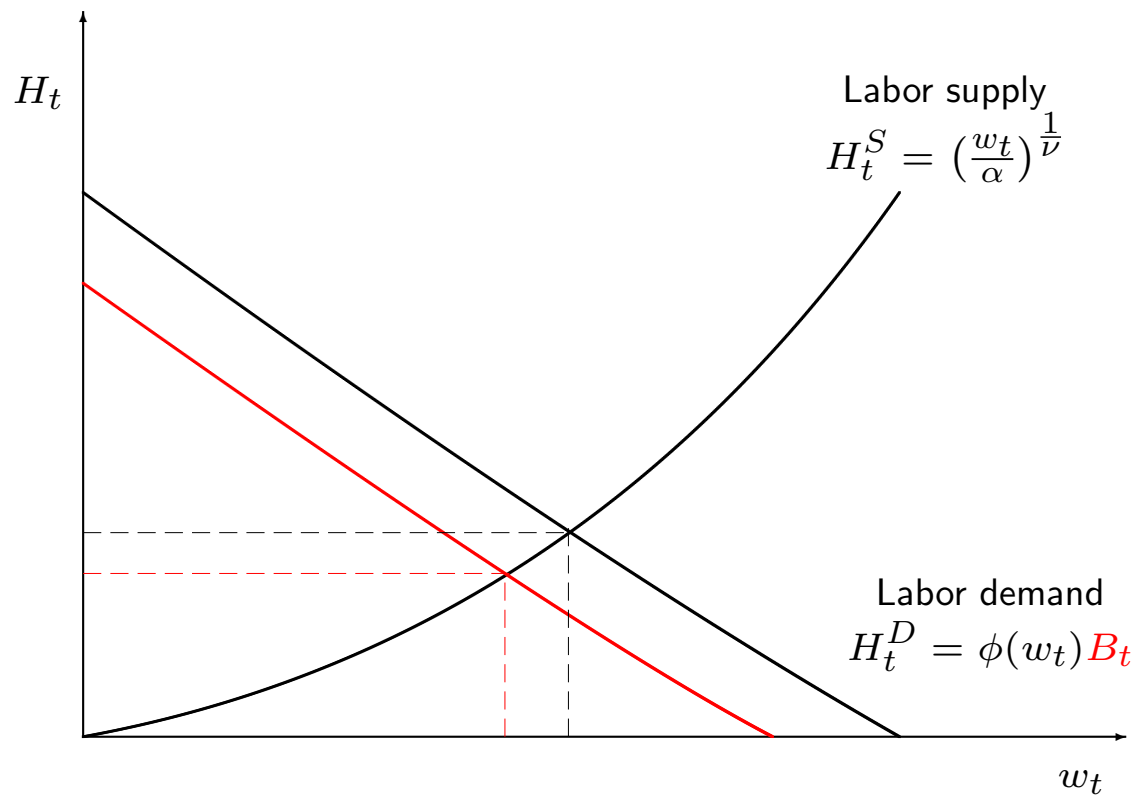
# LABOR MARKET EQUILIBRIUM



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# LABOR MARKET EQUILIBRIUM

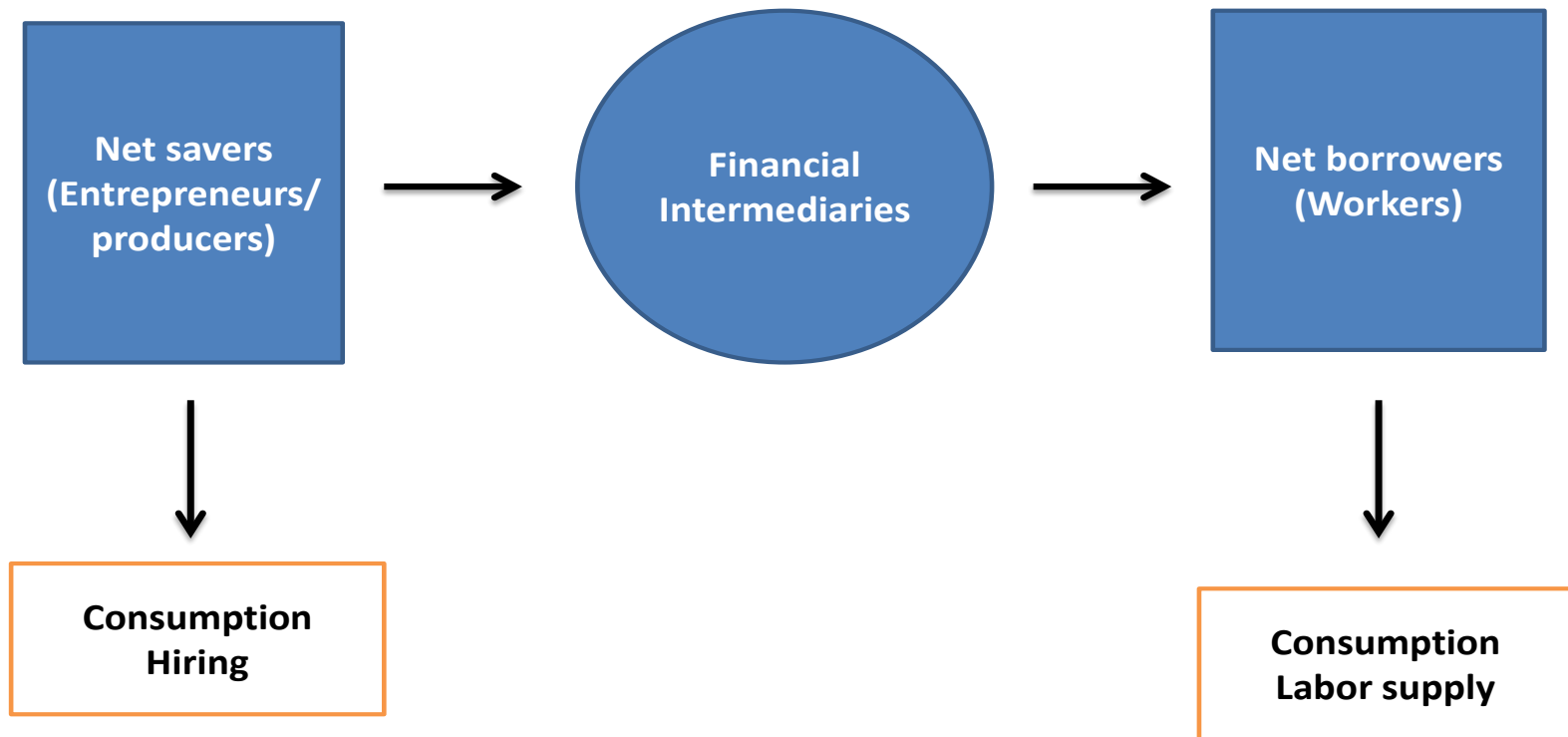
## (Decreased supply of liabilities)



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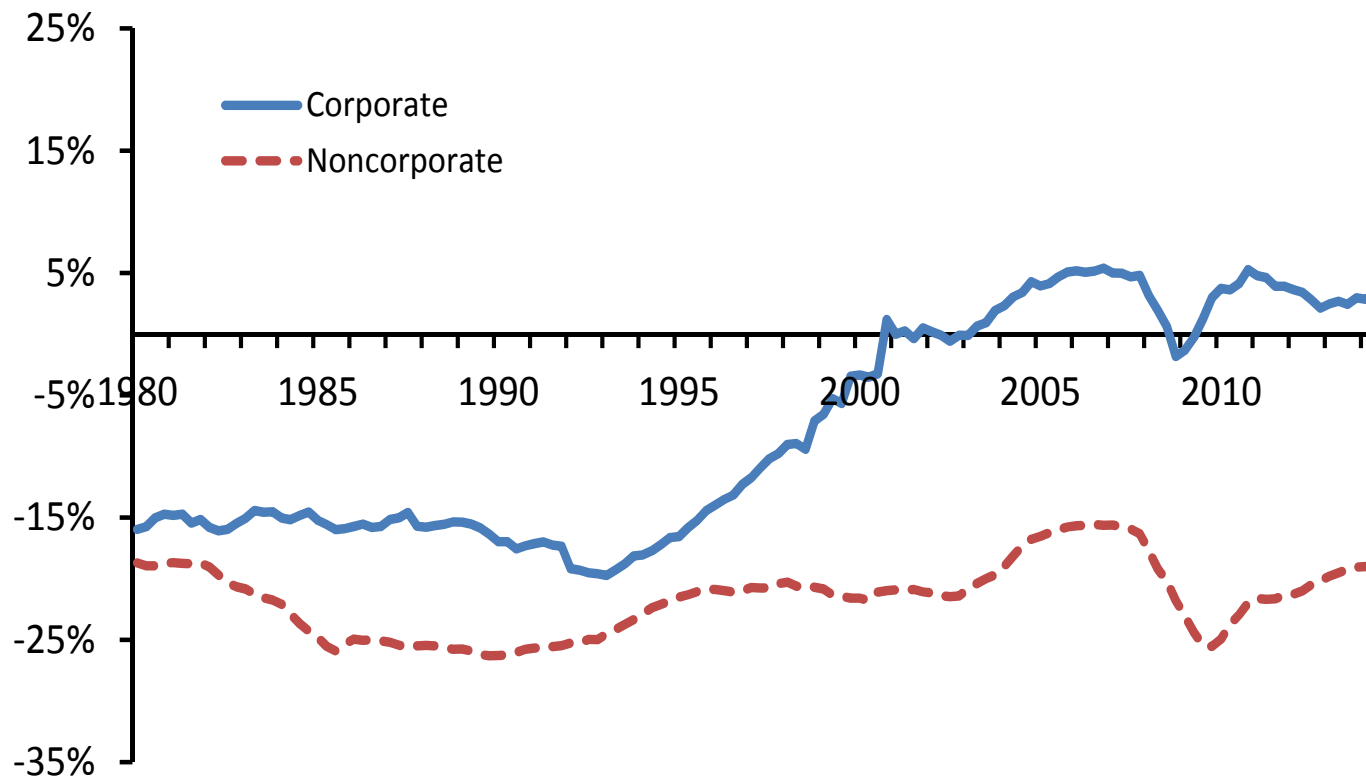
**INTRODUCING  
THE INTERMEDIATION SECTOR**

# Schematic overview of the economy



# Net financial assets

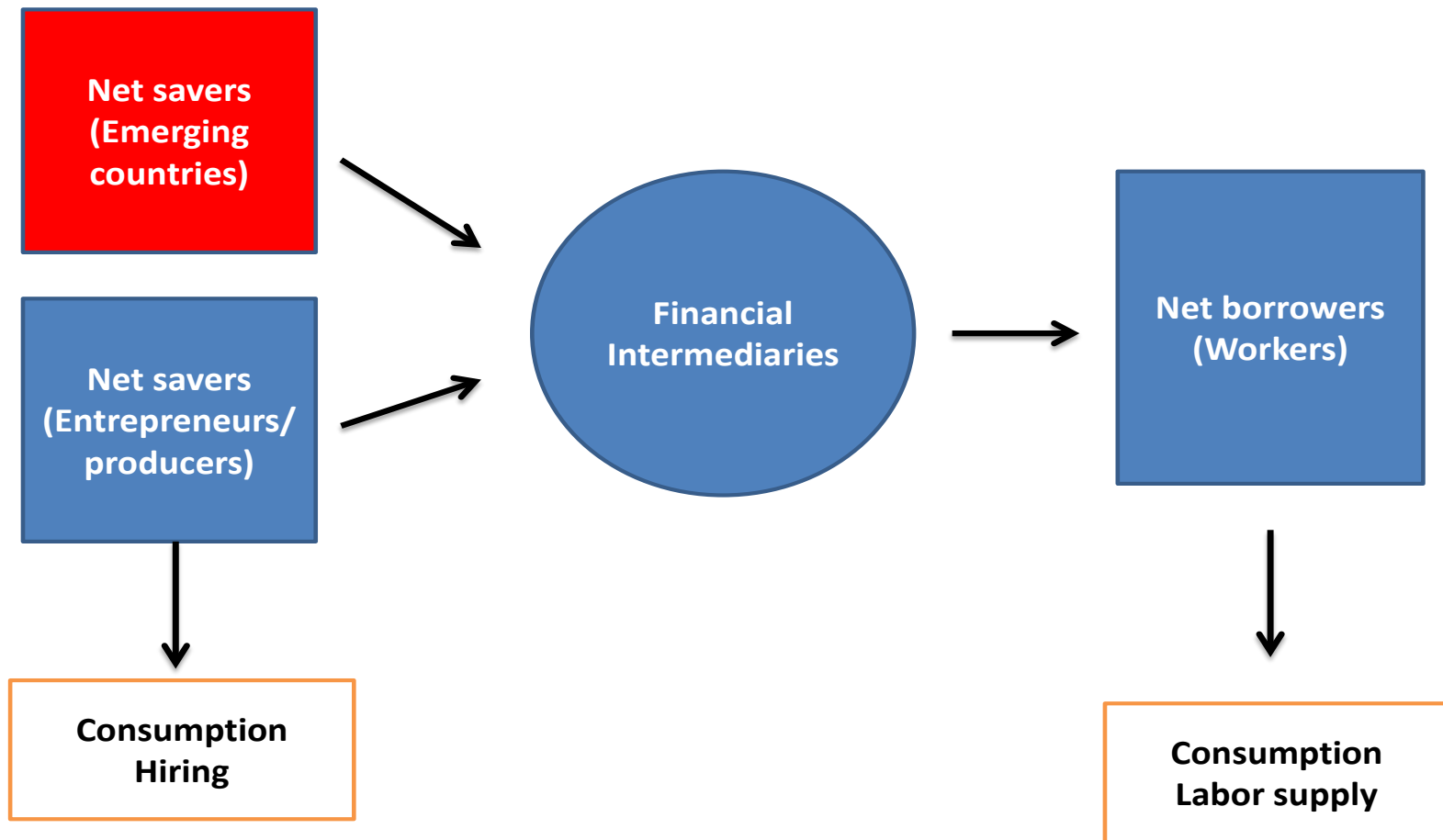
*(In percent of nonfinancial assets)*



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# **The growth of emerging economies and global imbalance**

# Schematic overview of the economy





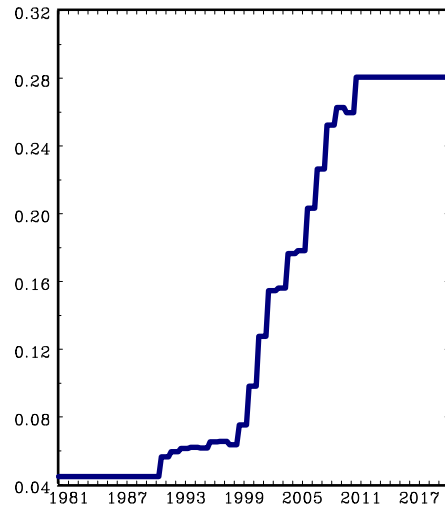
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# SIMULATION

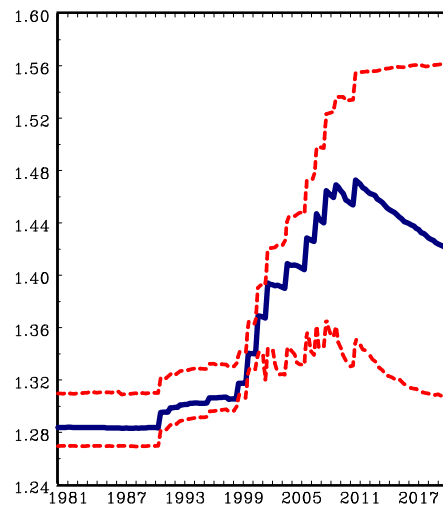
- The model is representative of industrialized countries.
- There is an external **exogenous** demand for bank liabilities from emerging economies.
- The external demand for bank liabilities from 1991 to 2011 replicates the net foreign position in debt and international reserves of industrialized countries.
- I conduct 1,000 repeated simulations of the model.

# REPEATED SIMULATIONS

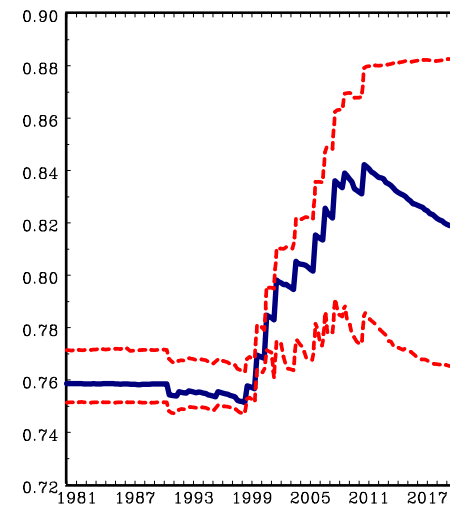
Foreign demand



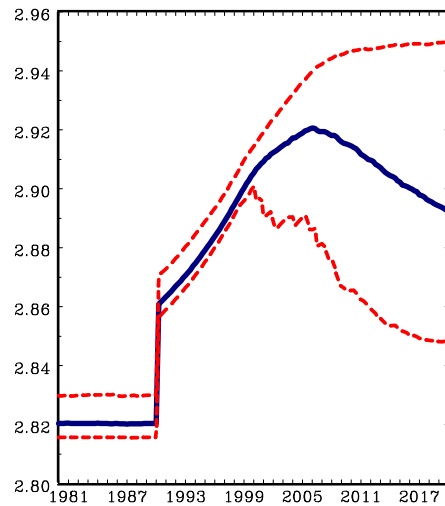
Bank liabilities



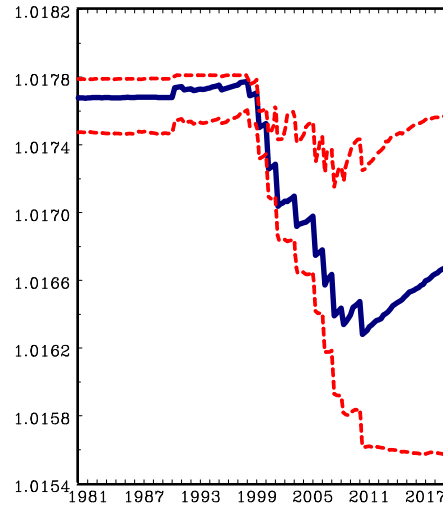
Bank leverage



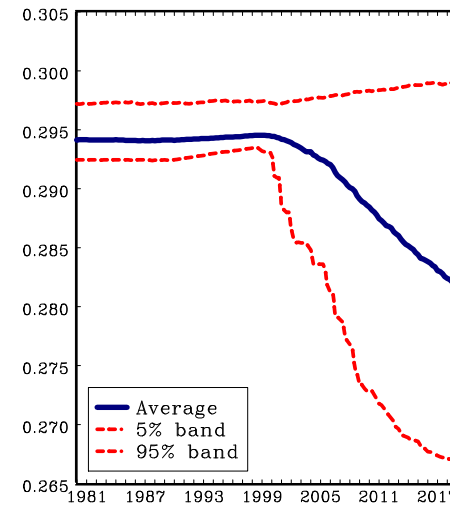
Asset price



Interest rate



Labor



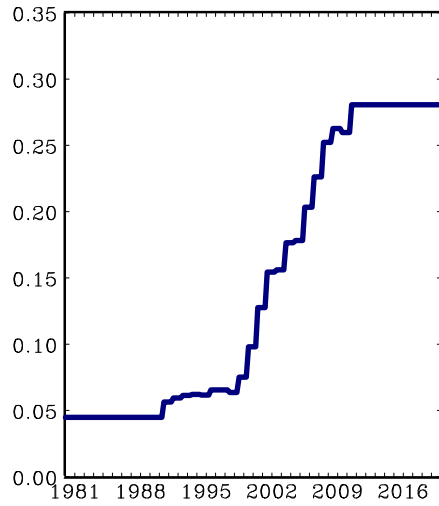
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## FOR A PARTICULAR REALIZATION OF SUNSPOTS

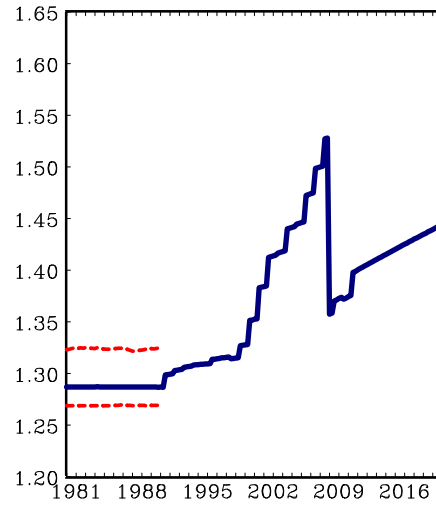
- From 1991 to second quarter of 2008 the realization of the sunspot shock is **HIGH**.
- In the third quarter of 2008 the realization of the sunspot shock is **LOW**.
- Afterwards, the realization of the sunspot shock is **HIGH**.

# REPEATED SIMULATIONS

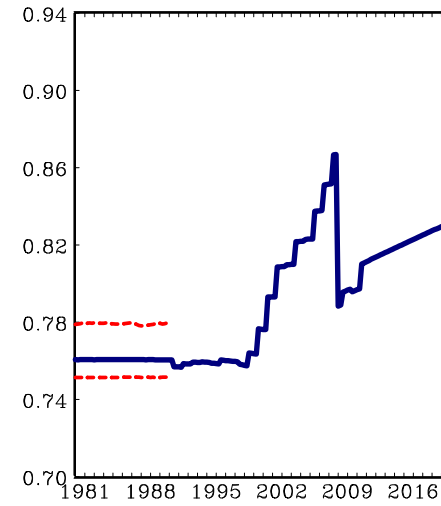
Foreign demand



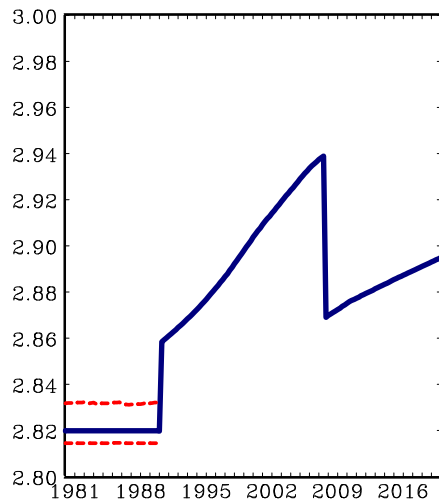
Bank liabilities



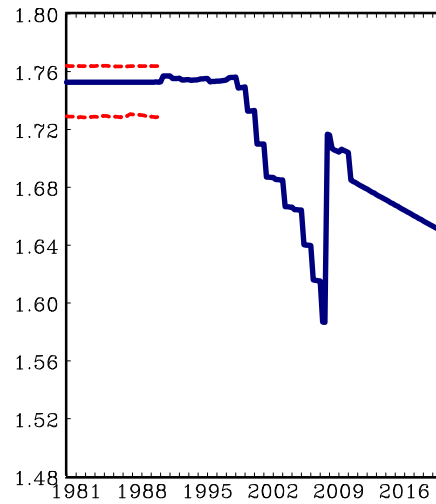
Bank leverage



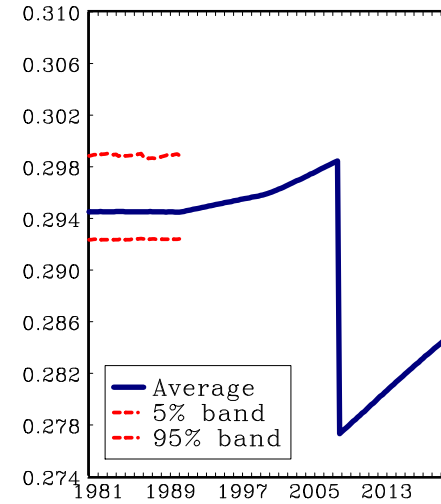
Asset price



Lending rate



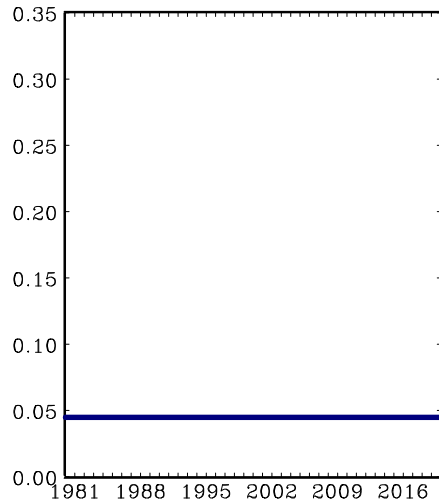
Labor



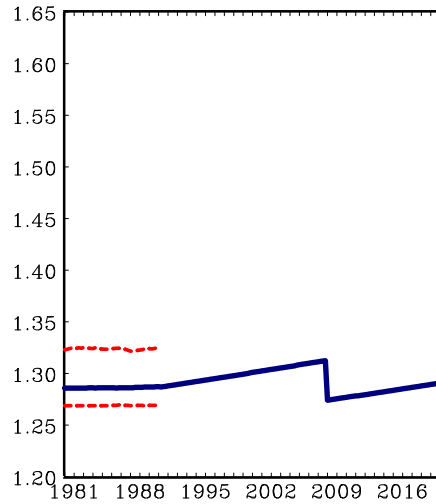
— Average  
- - - 5% band  
- - - 95% band

# REPEATED SIMULATIONS

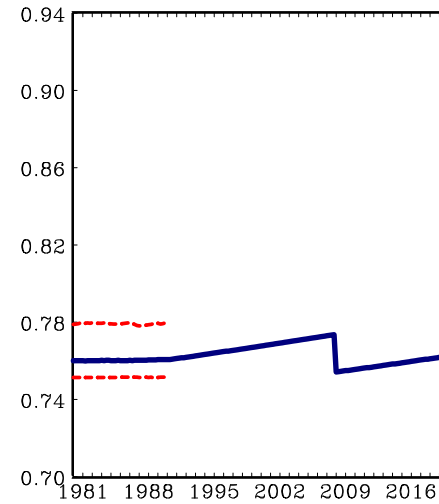
Foreign demand



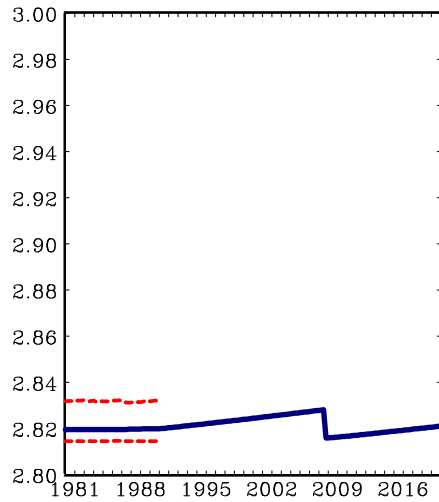
Bank liabilities



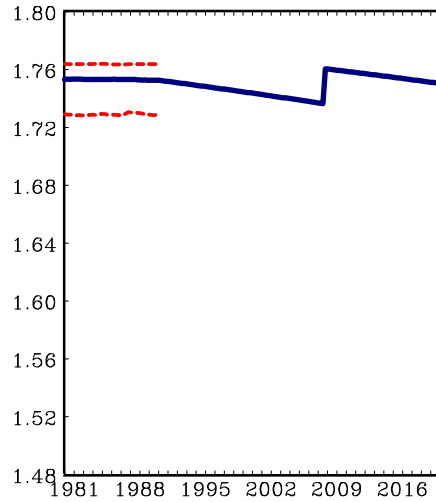
Bank leverage



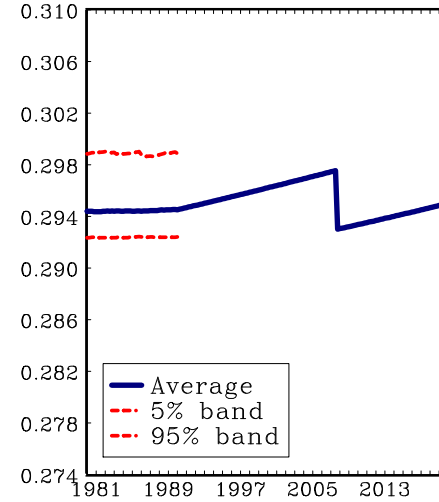
Asset price



Lending rate



Labor



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## CONCLUSION

- Cheap funding induces banks to increase leverage.
- But more leverage exposes the banking sector to crisis because of possible liquidity shortage if the market becomes pessimistic.
- Bank crises could be damaging for the real sector of the economy not necessarily because of lending cuts but because of the contraction in supply or value of liabilities created by banks (**Bank Liabilities Channel**).
- The increasing demand for financial assets (for example from emerging economies) may increase the likelihood and/or consequences of a crisis.