

# **PAYMENTS, CREDIT AND ASSET PRICES**

**by**

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# Banks in traditional macro-models with financial frictions

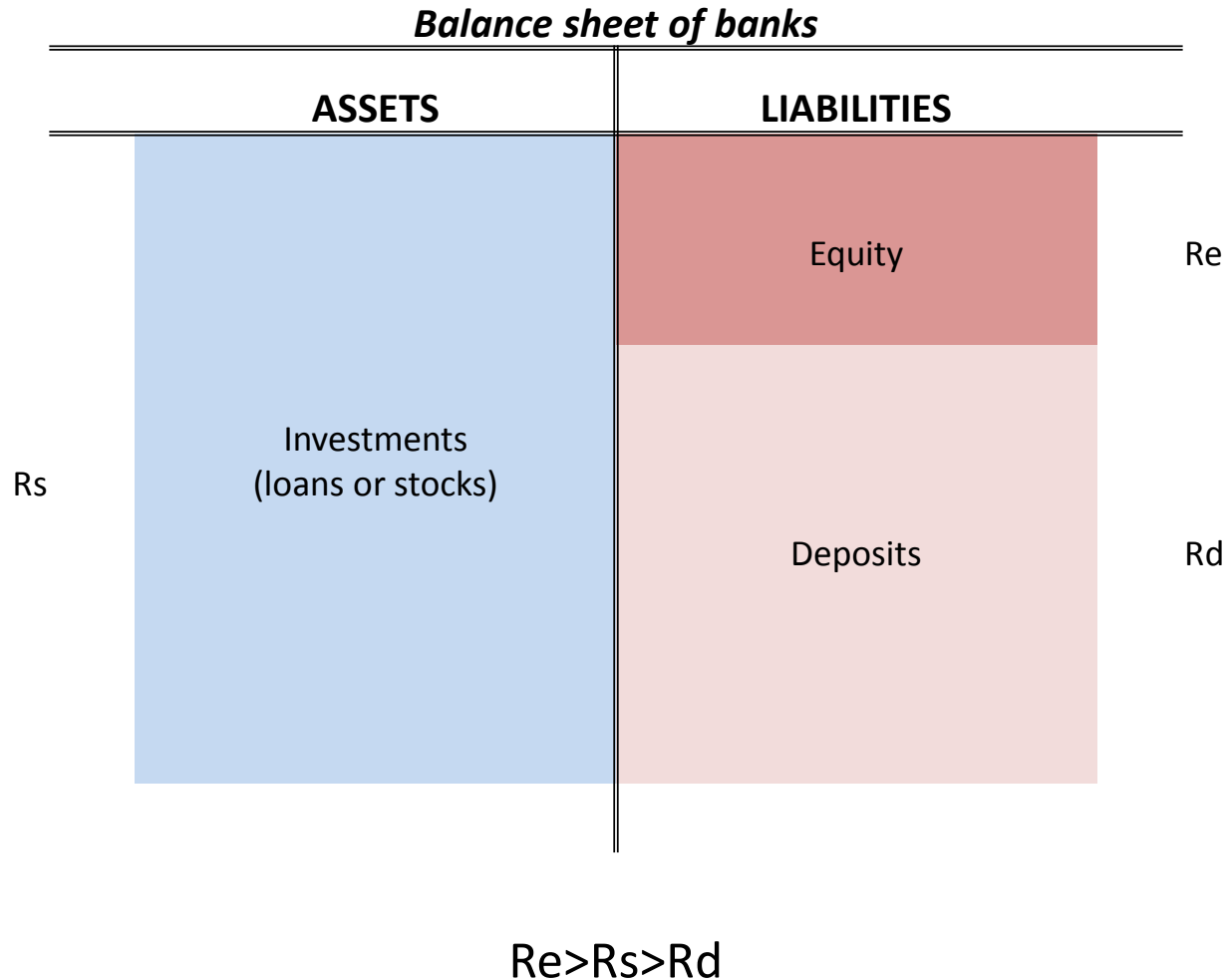
*Balance sheet of banks*

	ASSETS	LIABILITIES	
Rs	Investments (loans or stocks)	Deposits	Rd

$Rs=Rd$

The diagram illustrates the balance sheet of banks. It is divided into two main sections: ASSETS on the left and LIABILITIES on the right. The ASSETS section is shaded light blue and contains the text 'Investments (loans or stocks)'. The LIABILITIES section is shaded light red and contains the text 'Deposits'. To the left of the ASSETS section is the label 'Rs', and to the right of the LIABILITIES section is the label 'Rd'. Below the balance sheet, the equation  $Rs=Rd$  is written, indicating that the interest rate on loans (Rs) is equal to the interest rate on deposits (Rd).

# First generations of macro-models with banks



# Second generations of macro-models with banks

*Balance sheet of banks*

<b>ASSETS</b>		<b>LIABILITIES</b>	
Rr	Reserves	Equity	Re
Rs	Investments (loans or stocks)	Deposits	Rd

$$Re > Rs > Rd > Rr$$

# Piazzesi-Schneider

*Balance sheet of banks*

	ASSETS	LIABILITIES	
Rr	Reserves	Equity	Re
Ri	Overnight lending (Government bonds)		
Rs	Investments (loans or stocks)	Deposits	Rd

$$Re > Rs = Ri \geq Rr, Rd$$

# Rich environment that allows for the analysis of many policy schemes

## *Policy instruments*

- Interest rate on reserves,  $R_r$
- Supply of reserves,  $M$
- Supply of government bonds,  $B$

## *Policy interventions*

- Changes in interest rate on reserves,  $R_r$
- Changes in supply of reserves,  $M$
- Changes in supply of government bonds,  $B$
- Purchase of bank investments (trees)

# Institutional Investors

- In addition to banks there are
  - Carry traders
  - Active traders

# Carry traders (like first generation of banks)

*Balance sheet of banks*

	ASSETS	LIABILITIES	
	Investments (stocks)	Equity	Re
Rs		Loans from banks	Ri

$$Re > Rs > Ri$$



# Active traders

*Balance sheet of banks*

	ASSETS	LIABILITIES	
Rd	Reserves Deposits in banks	Equity	Re
Rs	Investments (stocks)		

$$Re > Rs > Rd$$

# Comments

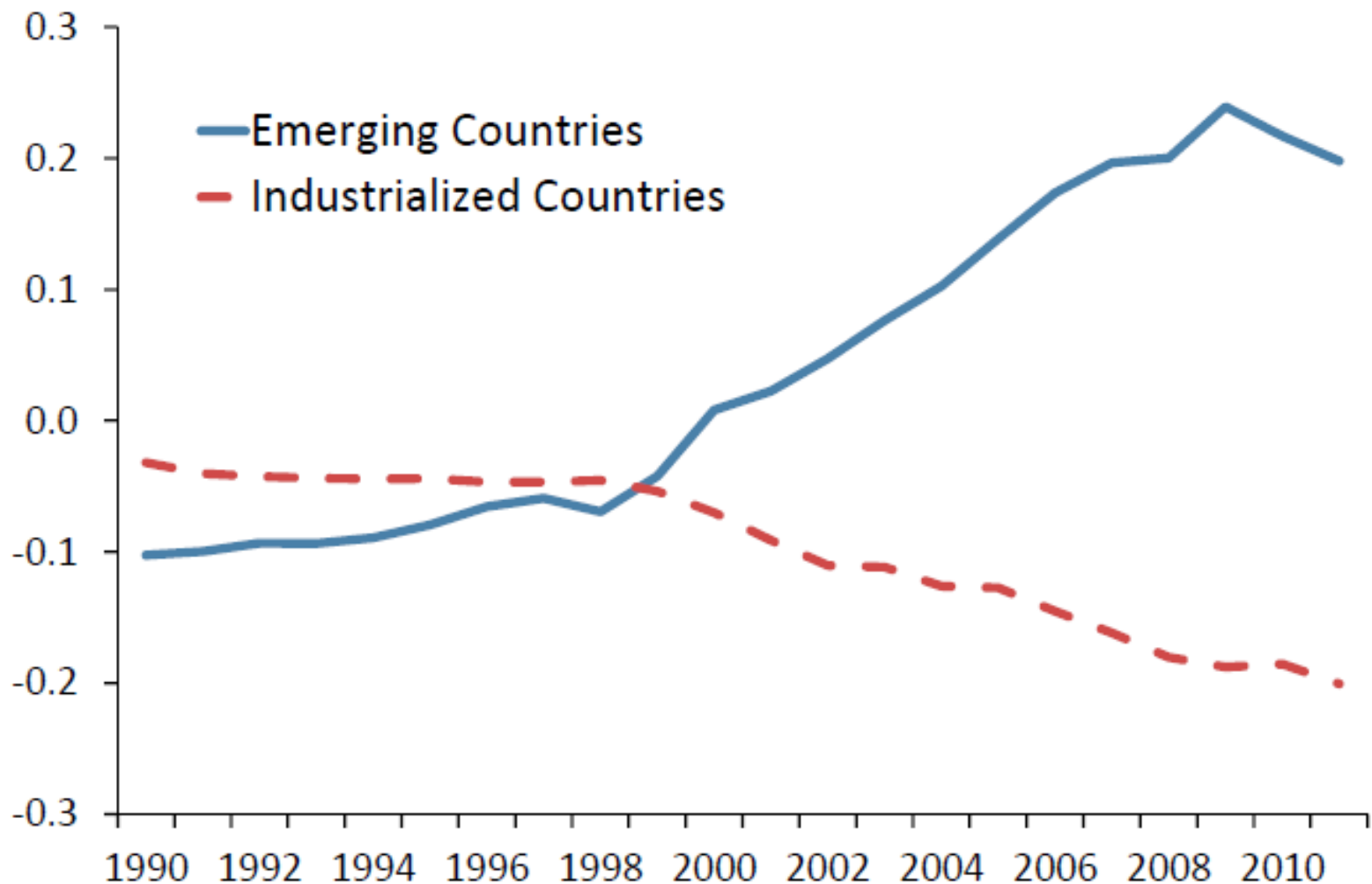
- The complexity of the model and the variety of issues that can be addressed are major contributions of the paper.
- What I find really interesting, however, is the consideration of institutional investors: two layers of financial intermediation.
- Eventually, it would be interesting to extend the model to allow for endogenous production and explore the significance of the financial sector for macroeconomic dynamics.

# ADDITIONAL EXERCISE I

## (Foreign demand for financial assets)

- The model could be used to study how the financial sector is affected by the inflow of foreign capital.
- Potentially it could generate similar results as in the paper presented yesterday by Primiceri.

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



# Balance sheet **before** foreign acquisition of government bonds

*Balance sheet of banks*

	ASSETS	LIABILITIES	
Rr	Reserves	Equity	Re
Ri	Overnight lending (Government bonds)		
Rs	Investments (loans or stocks)	Deposits	Rd

$$Re > Rs = Ri \geq Rr, Rd$$

# Balance sheet **before** foreign acquisition of government bonds

*Balance sheet of banks*

	ASSETS	LIABILITIES	
Rr	Reserves	Equity	Re
Ri	Overnight lending (Government bonds)	Deposits	Rd
Rs	Investments (loans or stocks)	<i>Held by foreigners</i>	

$$Re > Rs = Ri \geq Rr, Rd$$

# Balance sheet **after** foreign acquisition of government bonds

*Balance sheet of banks*

	ASSETS	LIABILITIES	
Rr	Reserves	Equity	Re
Ri	Overnight lending (Government bonds)		
Rs	Investments (loans or stocks)	Deposits	Rd

$$Re > Rs = Ri \geq Rr, Rd$$

# What happens to leverage and asset prices?

- Leverage increases not only in banks but also in institutional investors.
- The prices of trees held by banks and institutional investors increase.



# Carry traders (like first generation of banks)

*Balance sheet of banks*

	ASSETS	LIABILITIES	
	Investments (stocks)	Equity	Re
Rs		Loans from banks	Ri

$$Re > Rs > Ri$$

# What happens to the real assets held by households?

- If we allow households to finance the trees (houses) with debt, then also the price of these trees increase (Justiniano, Primiceri, Tambalotti).

# ADDITIONAL EXERCISE II

## (Financial innovations)

- The securitization process could facilitate the use of trees to satisfy the liquidity needs of banks.
- In the model, securitized trees could also be used, in part, as a collateral for interbank borrowing.