Monetary Policy, Inflation and Rational Asset Price Bubbles by Daisuke Ikeda

Alberto Martin

CREI, UPF, Barcelona GSE

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Overview

- Growing literature on macroeconomics and bubbles
  - What are bubbles? What are their effects?
  - Can/should we use policy to deal with them?
    - ★ Macroprudential? Fiscal? Monetary?
- **This paper:** New Keynesian model with rational bubbles
  - Price and wage rigidities
  - Financial constraints
- **Key ingredient:** bubbles relax financial constraints
  - *Financial-cost channel*
- **Key question:** monetary policy
  - Ramsey-optimal policy vs. standard (Taylor) rule

Some background

- Theory of rational bubbles (Samuelson 1958, Tirole 1985)
  - Can asset prices exceed NPV of future dividends?
  - YES! As long as it is expected to do so in the future as well
- Elegant theory, but problematic: bubbles
  - Require dynamic inefficiency ($r < g$)
    - ★ Rationality requires bubble growth $> r$
    - ★ Feasibility requires bubble growth $< g$
  - Are contractionary
- Recently, wave of models with financial frictions:
  - Existence of bubbles $\neq$ dynamic inefficiency
    - ★ Multiple interest rates coexist in equilibrium
  - Bubbles can be expansionary: provide
    - ★ Collateral (Martin and Ventura 2012)
    - ★ Liquidity (Caballero and Krisnamurthy 2006, Farhi and Tirole 2012)
- Is there an optimal bubble? Can policy help attain it?

This paper: model

- Firms combine labor and capital to produce intermediate good

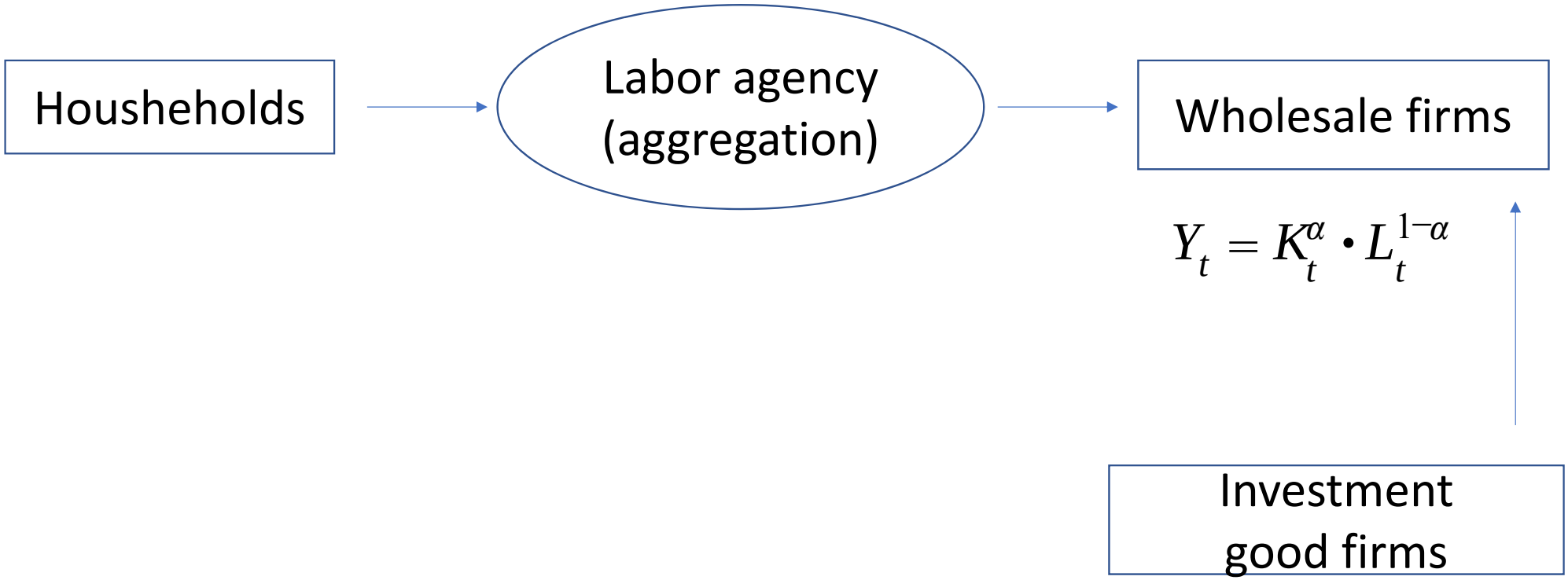
$$Y_t = K_t^{\alpha} \cdot L_t^{1-\alpha}$$

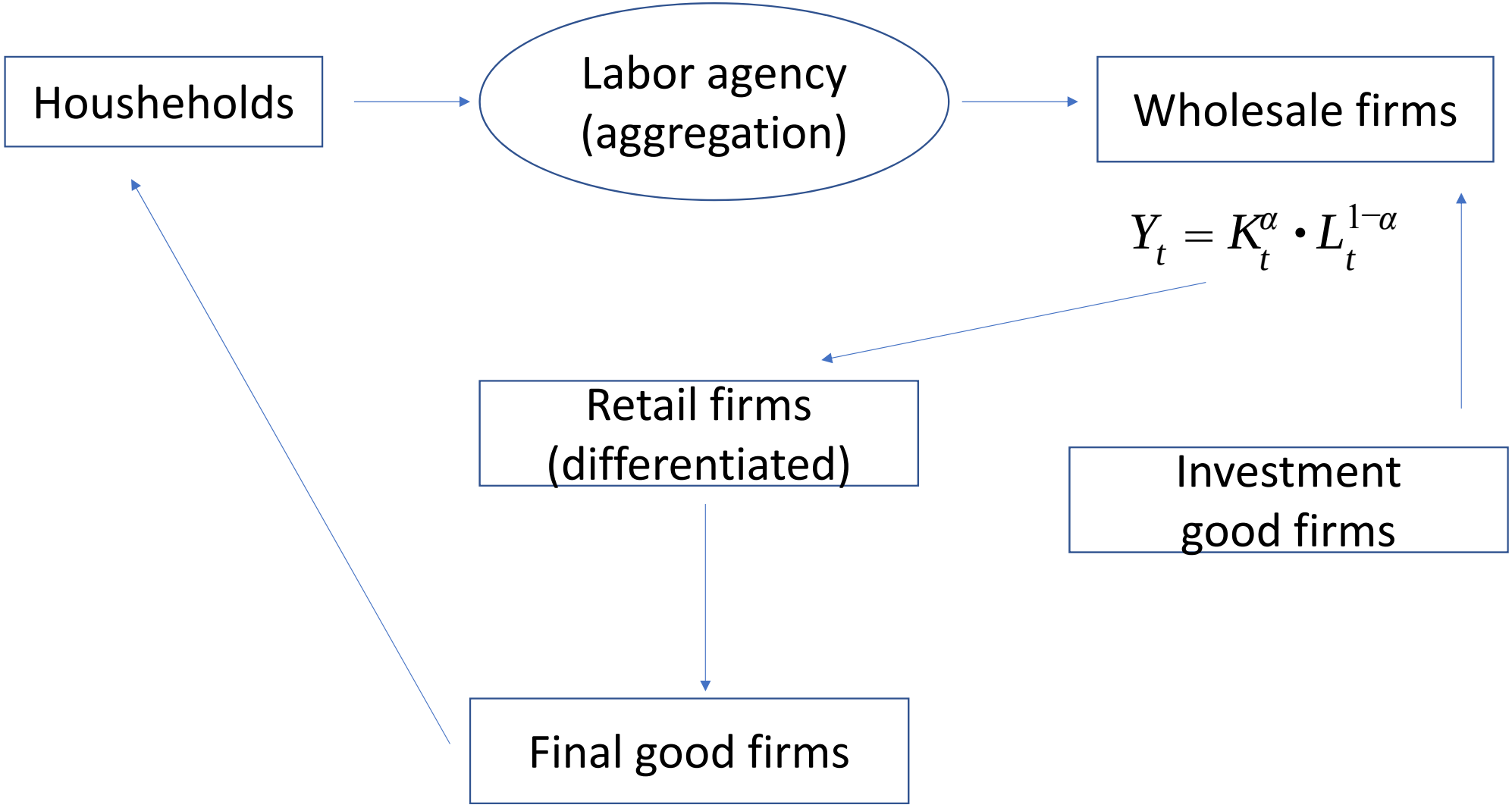
- Financial constraint limits hiring/capital purchases
  - Firms can only pledge a fraction of their value
  - But what is their value?

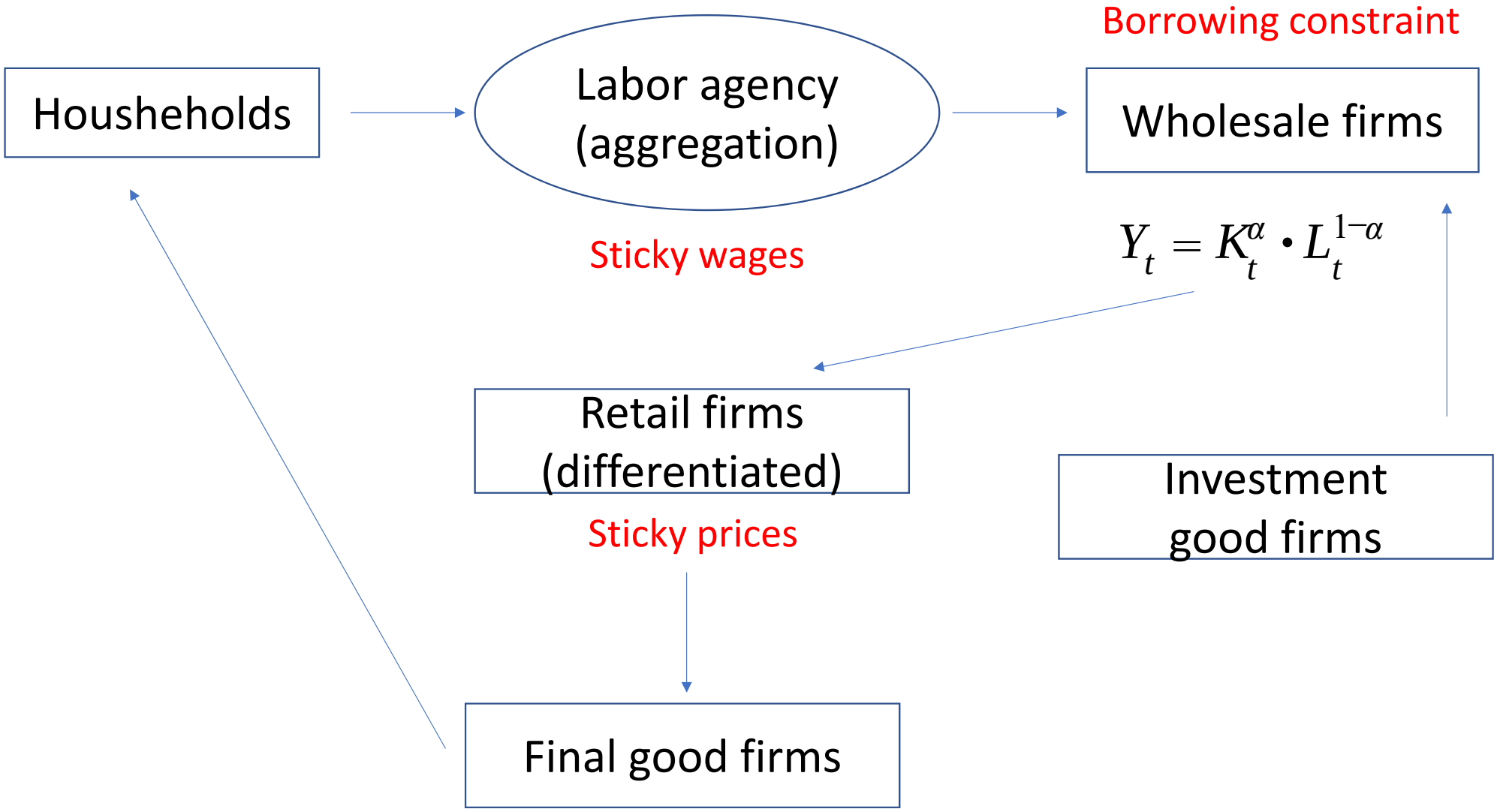
$$V_t = Q_t \cdot K_t + B_t$$

    - ★ $B_t > 0$ raises capital purchases and hiring/output
    - ★ How does it affect output and inflation?

- Setup sounds simple enough, but....


Housheholds
Labor agency
(aggregation)
Wholesale firms
$Y_t = K_t^{\alpha} \cdot L_t^{1-\alpha}$
Investment
good firms


Housheholds
Labor agency
(aggregation)
Wholesale firms
$Y_t = K_t^{\alpha} \cdot L_t^{1-\alpha}$
Retail firms
(differentiated)
Investment
good firms
Final good firms


Borrowing constraint
Housheholds
Labor agency
(aggregation)
Wholesale firms
Sticky wages
$Y_t = K_t^{\alpha} \cdot L_t^{1-\alpha}$
Retail firms
(differentiated)
Investment
good firms
Sticky prices
Final good firms

Borrowing constraint

$$P_t I_t + W_t L_t \leq (1-\delta_e) E_t \beta \frac{\wedge_{t+1}}{\wedge_t} \int V_{t+1,\tau+1}(\kappa K_t, \epsilon) d\Phi(\epsilon)$$

$$\uparrow L_t = \frac{(1-\alpha)\cdot K_t}{\frac{W_t}{P_t}\cdot(1+\zeta_t)} \downarrow$$

This paper: policy results (calibration)

- Relative to standard Taylor rule,
  - Ramsey policy calls for curbing response of I, Y, C to bubble
  - True with or without financial-cost channel
- Only real implication of financial cost channel:
  - Introduces trade-off between stabilizing Y or π

Comment 1: existence of bubbles

- Model requires deeper explanation
- How can bubbles fulfill transversality?
  - Model answer: they do not need to grow at the interest rate
    - ★ Why? Additional benefit of relaxing borrowing constraint

$$B_{t,\tau} = (1 - \delta_e) E_t \beta \frac{\Lambda_{t+1}}{\Lambda_t} B_{t+1,\tau+1} (1 + G_{t+1})$$

- Why not save in bonds instead?
  - Sell bubble for B_t and invest it in bonds
  - Bonds yields market interest rate ($>$ return to bubbles) and...
    - ★ ...proceeds can also be used to invest in the future
  - This strategy appears to dominate bubbles
    - ★ Not sure how it is ruled out

Comment 2: financial constraint

- All results follow from (intra-period) financial constraint

$$P_t I_t + W_t L_t \leq (1 - \delta_e) \cdot E_t \left[\beta \cdot \frac{\wedge_{t+1}}{\wedge_t} \cdot \int V_{t+1,\tau+1}(\kappa K_t, \epsilon) d\Phi(\epsilon) \right]$$

- Idea: firm borrows to pay wages and purchase capital at beginning of period
  - In the event of end-of-period default, creditors seize fraction κ of capital stock
- Questions:
  - Why K_t and not K_{t+1}?
  - What happens to bubble if firm defaults / is seized by creditors?
    - ★ Can creditors appropriate it entirely?
- None of this is discussed

Comment 3: what is specific about bubbles?

- Financial-cost channel driven exclusively by borrowing constraint

$$P_t I_t + W_t L_t \leq (1 - \delta_e) \cdot E_t \left[\beta \cdot \frac{\wedge_{t+1}}{\wedge_t} \cdot \int V_{t+1,\tau+1}(\kappa K_t, \epsilon) d\Phi(\epsilon) \right]$$

  - Bubble relaxes constraint (*bubble is good!*)
  - But bubble volatile

- In principle, similar logic applies to productivity shocks
- Common feature in many bubble models
- But here especially poignant:
  - Emphasis is on monetary policy and financial cost channel
  - Comparison with productivity shocks would be insightful

Comment 4: bottom line on monetary policy

- Without financial cost channel:
  - Bubble raises both output and inflation
  - Relative to Taylor rule, optimal policy curbs boom: low interest rate
- With financial cost channel:
  - Bubble raises output but reduces inflation
  - Relative to Taylor rule, optimal policy curbs boom: low interest rate
- I would adopt alternative strategy:
  - What are the inefficiencies/costs associated to bubbles?
  - Absent alternatives, what is the optimal monetary policy?
  - How does it differ from inflation target / standard Tayor rule?

Conclusion

- Interesting paper on important and growing literature
- My suggestions:
  - Deeper explanation/exploration of model
  - Clarify effects and inefficiencies of bubbles (e.g., vs. productivity shocks)
  - Derive optimal policy and compare with standard Taylor rule