Asset Bubbles and Economic Policy

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NET PRESENT VALUE PRICING

- Simplest model: $$V = \sum_{t=1}^{\infty} \frac{D_t}{R_t}$$

- With uncertainty: $$V = \sum_{t=1}^{\infty} \sum_{s=1}^{S} \frac{D_{s,t}}{R_{s,t}}$$

- With incomplete markets: $$V = \max_{i} \left\{ \sum_{t=1}^{\infty} \sum_{s=1}^{S} \frac{D_{s,t}}{R^{i}_{s,t}} \right\}$$

- We observe periods where P>V, and ΔP seems unrelated to changes in "fundamentals".

- Define P-V as the "bubble" component of an asset price. Where does it come from?

1. It does not exist (difficulty of measuring of V)
   ⇒ Signals are right, don't worry!

2. Irrationality of some form (existence of noise traders)
   ⇒ Signals are wrong, get rid of the bubbles!

3. Rational and help complete the markets
   ⇒ Signals are right, but make sure bubbles don't burst!

THE SAMUELSON-TIROLE MODEL

	0	**1**	**2**	**3**	**4**
0	W_o	0			
1		W_1	0		
2			W_2	0	
3				W_3	0
4					W_4

- $W_0=1$, $W_1=1+g$, $W_2=(1+g)\cdot(1+g)$, ... $W_t=(1+g)^t$

- To provide for retirement, consume half of the wage and save the rest. But how should one invest these savings?

    1. REAL INVESTMENT (capital) which yields a rate of return R $\Rightarrow$ old age consumption is $0.5 \cdot W_t \cdot (1+R)$

    2. SPECULATIVE INVESTMENT (a bubble) which yields a rate of return G $\Rightarrow$ old age consumption is $0.5 \cdot W_{t+1} = 0.5 \cdot W_t \cdot (1+G)$

- If G>R, the speculative investment is best!!

- If G>R, the bubble is attractive to investors because it yields a high rate of return.

- If G>R, the bubble is feasible because it never outgrows the savings of the economy.

- If G>R, the bubble raises welfare because it eliminates wasteful investment. (In all dates, investment exceeds the return to capital $\Rightarrow$ $0.5 \cdot W_t = 0.5 \cdot W_{t-1} \cdot (1+G) > 0.5 \cdot W_{t-1} \cdot (1+R)$.

PROBLEMS

- In real economies, the share of capital (30-40%) exceeds investment (15-25%).

- In real economies, bubbly episodes tend to be associated with increases in output, the capital stock and productivity.

$\Rightarrow$ The theory was abandoned in the late 80s or early 90s.

FINANCIAL MARKET FRICTIONS

- Assume half of the individuals of each generation face a rate of return $R_H > G$ and the rest has $R_L < G$.

- Assume agency costs or other frictions prevent equalization of returns.

- Then, H-individuals buy productive assets or capital, while the L-individuals buy speculative assets or bubbles.

- Implications:

1. The model is consistent with the share of capital exceeding investment $\Rightarrow 0.5 \cdot W_t = 0.5 \cdot W_{t-1} \cdot (1+G) < 0.5 \cdot W_{t-1} \cdot [1+0.5 \cdot (R_H + R_L)]$ and yet $0.25 \cdot W_t = 0.25 \cdot W_{t-1} \cdot (1+G) > 0.5 \cdot W_{t-1} \cdot (1+R_L)$

2. The model is consistent with the bubble leading to increases in output, the capital stock and productivity $\Rightarrow$ the bubble not only eliminates inefficient investment, but also *creates* efficient investments.

- The bubble channels resources not only from investors to consumers (Samuelson-Tirole), but also from inefficient investors to efficient ones. Alternative channels:

    1. Rents from the creation of bubbly firms
    2. Reduction in costs and increased profitability
    3. Bequests
    4. Creation of collateral
    5. Other

- The bubble improves the allocation of investments, raising output, the capital stock and productivity.

WHY IS THE THEORY USEFUL?

- We are likely to remain in an environment of low interest rates
    1. Preference for liquidity and risk aversion
    2. Asymmetric financial development

$\Rightarrow$ Asset bubbles will pop up and burst with some regularity

- The theory provides an analytical framework to think about:
    1. The sources and nature of economic fluctuations
    2. The design of macroeconomic policy
    3. The effects of various policy reforms

SOURCES OF ECONOMIC FLUCTUATIONS

- Fluctuations in productivity and preferences (fundamentals) have effects directly, and also through movements in the size of the bubble.

- Investor sentiment plays a crucial role in economic fluctuations, creating strong and unexpected wealth effects.

- Optimal policy is to sustain the maximal bubble.

    1. Strong governments that can commit to tax or borrow abroad can sustain the bubble without ever intervening.

    2. Weak governments that cannot commit to tax or borrow abroad will be subject to changes in investor sentiment.

UNDERSTANDING RECENT HISTORY: GLOBAL IMBALANCES

FACTS: Large and persistent decline in the US net foreign asset position since mid 1990s:

- Began as an equity-driven decline (stock market bubble)
- Then transformed into a debt-driven decline (budget deficits)

Are these different types of situation? What are the implications for sustainability and adjustment?

EXPLANATIONS: What are the shocks? What are the welfare consequences?

- Conventional views, based on standard crowding-out with debt and capital

- Alternative views, based on crowding-out with debt, capital *and* bubbles

    1. "Benevolent" view (US gov. solving a market failure)
    2. "Cynical" view (US gov. expropriating foreign equity-holders)

CRISIS PREVENTION AND RESOLUTION

- The good equilibrium is the one with bubbles, how do we keep it?

    1. Building confidence (can the policy maker be a sunspot?)
    2. Price support schemes (free lunch and credibility)
    3. Government bubbles (debt management)

Problems: what is the source of bubble movements? Expectations vs. fundamentals

- Not all bubbles are alike (dotcom bubble vs. housing bubble), how do we choose among them?

1. Resource cost and misallocation during the bubble
    - Costly bubble creation
    - Welfare? private vs. social returns
2. Wealth shocks and their distribution when the bubble bursts
    - Uncertainty and paralysis (the option value of waiting, wars of attrition)
    - The debt overhang problem (capital markets vs. banks, institutional control during the bubble)

POLITICAL ECONOMY OF REFORMS

- Reforms that raise the government's ability to tax and borrow abroad can have strong effects on output and consumption, even if they do not affect productivity. These reforms create no conflict.

- Financial reforms create conflict, as they reduce or burst the bubble.

- Reforms that raise labor productivity create no conflict, since they raise both production and the bubble.

- Reforms that raise capital productivity create conflict, since they raise productivity but reduce the bubble.

FINANCIAL INTEGRATION

- Consider a reduction in the technological and policy barriers to international capital flows.

- We move from a world with many country bubbles to a world with a single global bubble:

  1. Financial integration synchronizes the bubble component of wealth across countries.

  2. Financial integration destroys some bubbles, while makes others grow very fast. The net effect might be an overall increase in the bubble (efficient vs. inefficient markets).

- With efficient markets, it is unlikely that current winners be able to compensate current losers. To minimize this problem, it is important to:

  1. Proceed fast with financial integration in bad times since the bubble is small.
  2. Create channels for adequate international compensation, since the losers will be concentrated in countries with a large bubble.

- With inefficient markets, it is likely to be easier to compensate current losers by current winners. This suggests that:

  1. The optimal sequence of reforms is first to integrate financial markets and second to improve their efficiency.
  2. But countries will then have an incentive to compete for "bubbles", and this competition might be wasteful.

SUMMARY

- Asset prices tend to depart from fundamentals for substantial periods of time.

- There is a theory of rational bubbles that can explain the origin and effects of asset price bubbles.

- The theory has a number of implications for the nature of business cycles, the political economy of reforms and the effects of globalization.

- The theory can be used to provide novel accounts of the origin and evolution of global imbalances and to understand the policy implications of the current crisis.