

Topics for Today

- 1.) Currency Crises
 - 1st-Generation vs. 2nd-Generation Models
- 2.) A Simple 1st-Generation Currency Crisis Model
- 3.) Pros + Cons of 1st-Generation Crisis Models

Currency Crises

So far we have assumed that fixed exchange rate regimes are credible, i.e., the government does what is necessary to maintain the peg, and the public knows this.

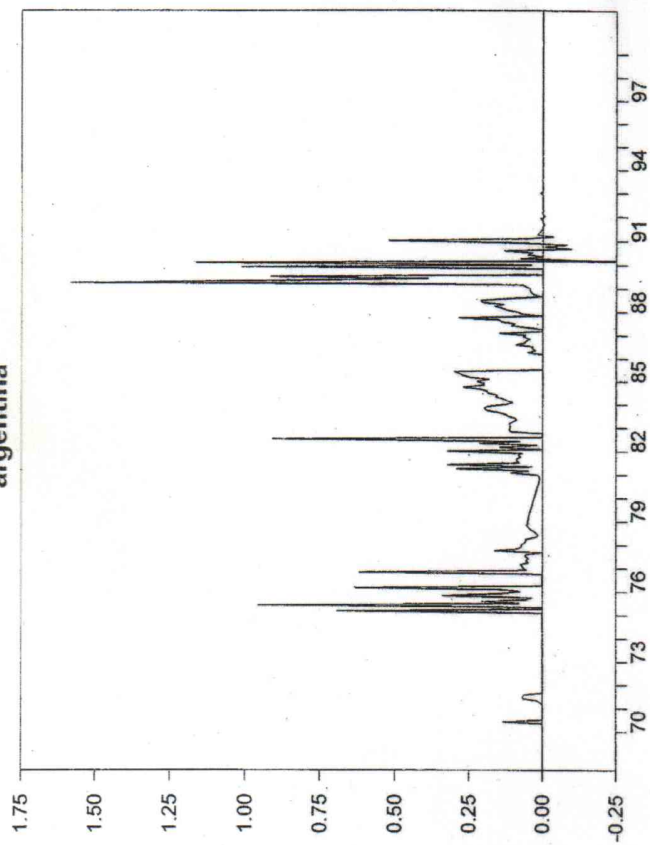
In practice, most pegs eventually collapse. Our goal is to understand why and how.

We will study two classes of models:

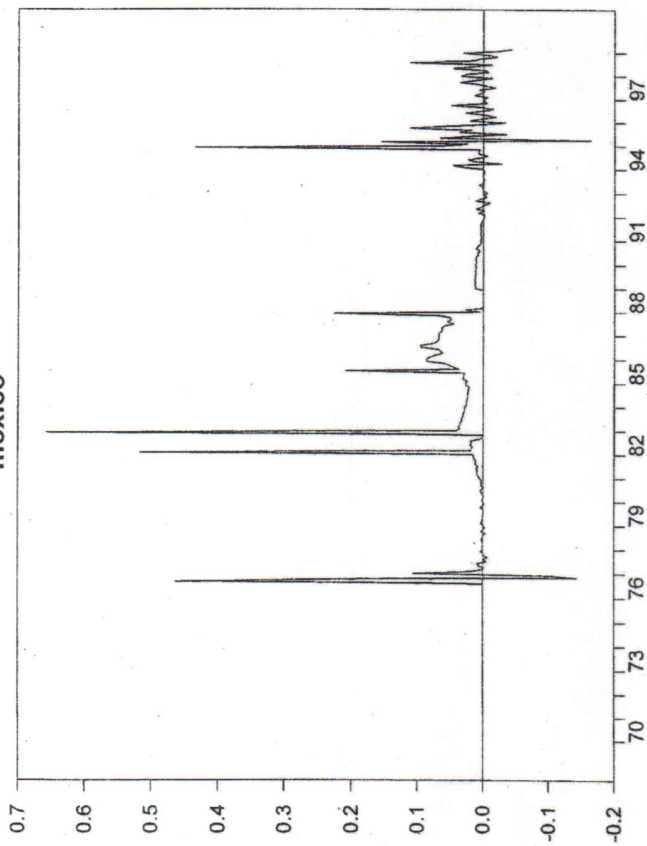
- 1.) 1st-Generation Models - These attribute currency crises to inconsistent macroeconomic policy
- 2.) 2nd-Generation Models - These attribute currency crises to switches between multiple equilibria

It turns out that these two theories of currency crises have quite different policy implications

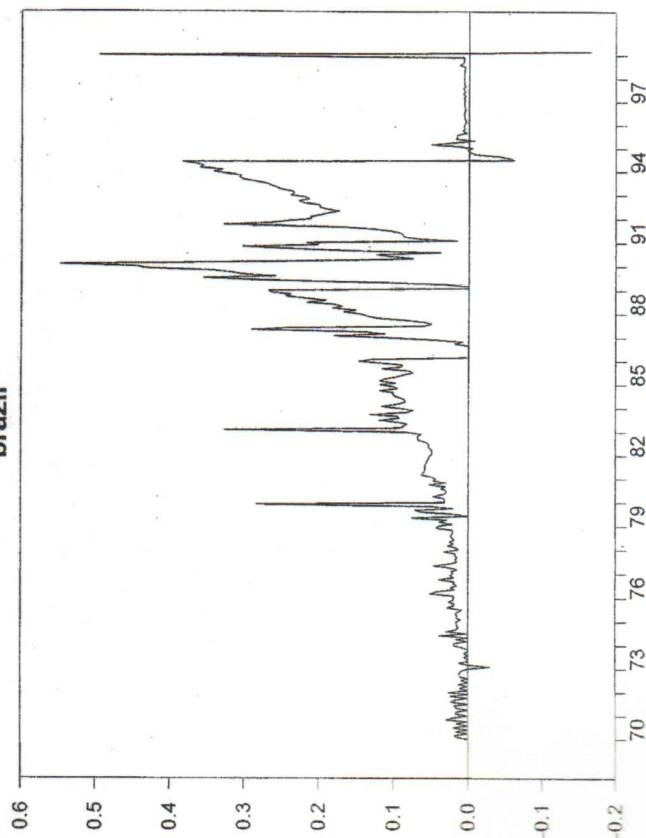
argentina



mexico



brazil



Recent Currency Crises

1.) Europe 1992-93

2.) Mexico 1994

3.) Asia 1997

- Thailand, Indonesia, Malaysia, Phillipines, Korea

4.) Brazil 1999

5.) Turkey 2000

6.) Argentina 2001

A Simple 1st Generation Crisis Model

Assumptions

- 1.) A small country unilaterally pegs its ex. rate to another country's currency.
- 2.) The govt. runs a persistent fiscal deficit that is financed by money creation.
- 3.) The govt. keeps the ex. rate fixed until it runs out of reserves, after which it is forced to let the currency float.
- 4.) Output is constant
- 5.) Prices are flexible (Monetary Approach / PPP).
- 6.) No Uncertainty / Perfect Foresight

With these assumptions, we know that eventually the ex. rate must float, since eventually the govt. will run out of reserves. The only question is when this occurs. Interestingly, we will see that there must be a speculative attack, i.e., reserves cannot be depleted gradually and continuously.

The ~~Key~~ Key to understanding the timing of speculative attacks is the notion of a "shadow" exchange rate.

Shadow Exchange Rate = The rate that would prevail in the market if the CB holds no FX reserves & the currency begins to float.

Money Mkt. Equil.

$$M = F + A = P \cdot L(\bar{Y}, R)$$

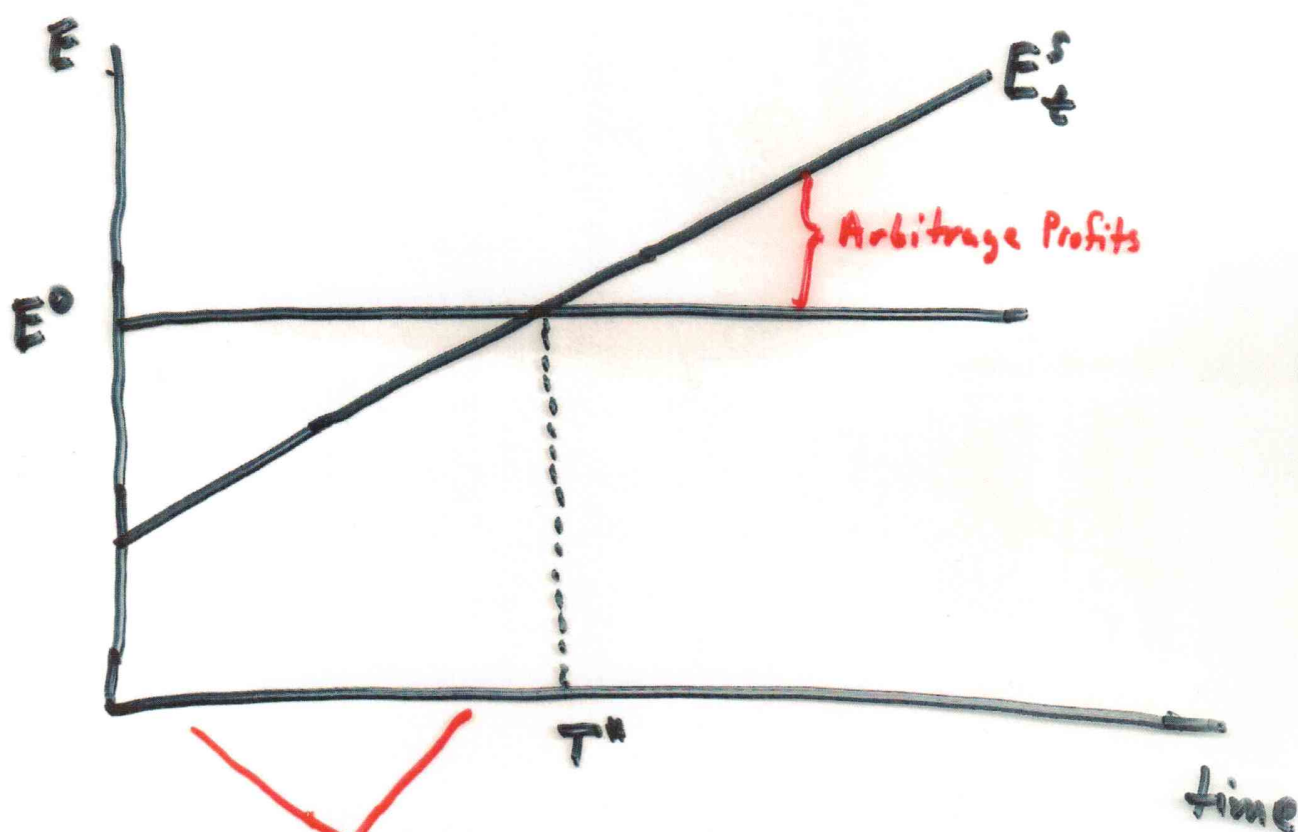
With flex. prices & PPP, $P = E$ (assuming $\frac{P^*}{P} = 1$)

Therefore,

$$E_t^s = \frac{A_t}{L(\bar{Y}, R)}$$

Since A_t is rising over time, so is E_t^s

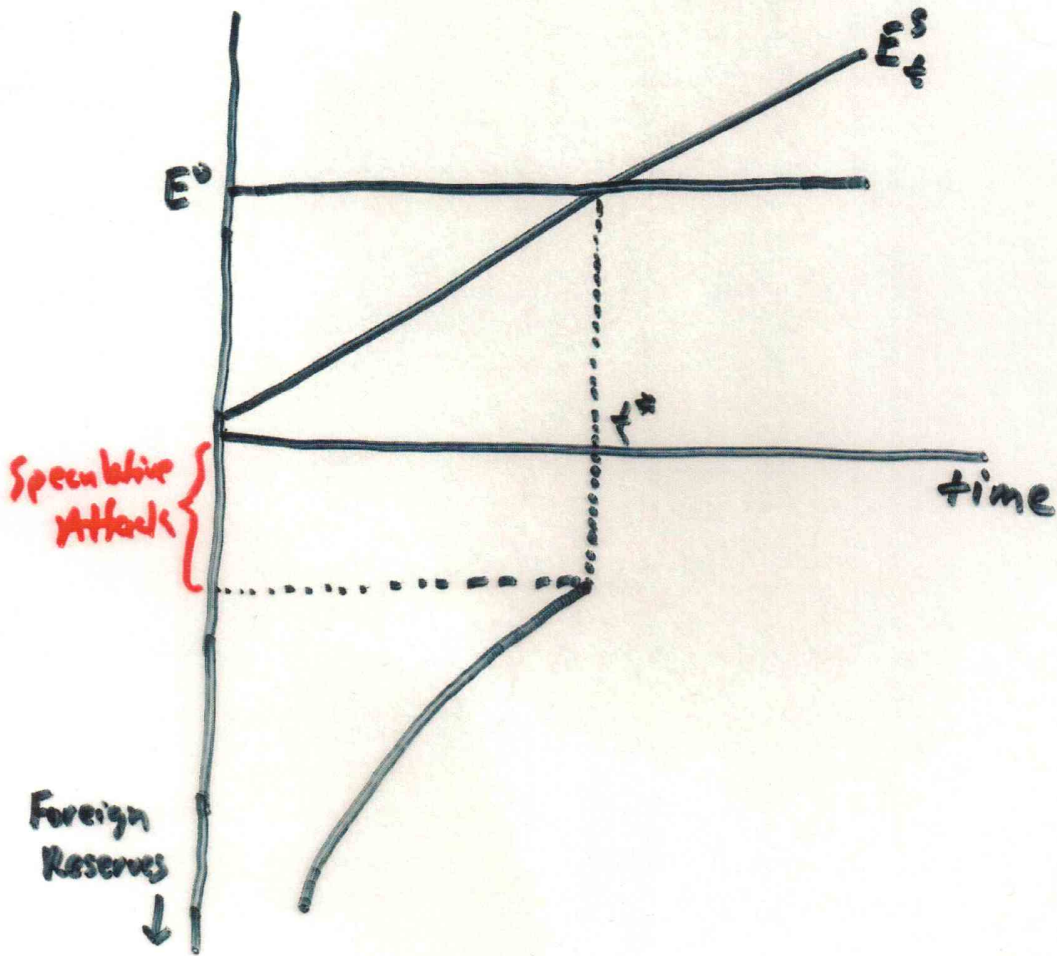
Now, the crucial observation is that E_t^s is hypothetical price speculators can sell fx back to the CB in the event that the peg collapses. Assuming no arbitrage, this allows us to nail down a precise attack date.



Not profitable to attack, i.e., buy at E^0 , sell at E_t^s

Crisis date can't go beyond T^* , since speculators have an incentive to "beat the market" and attack the day before

The Timing of Speculative Attacks

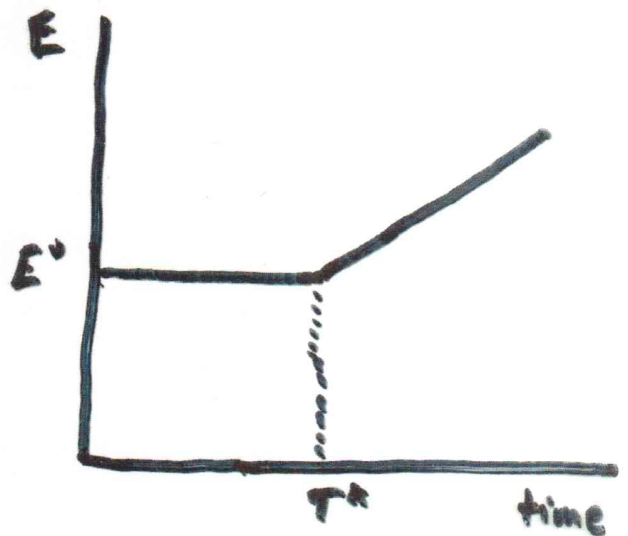
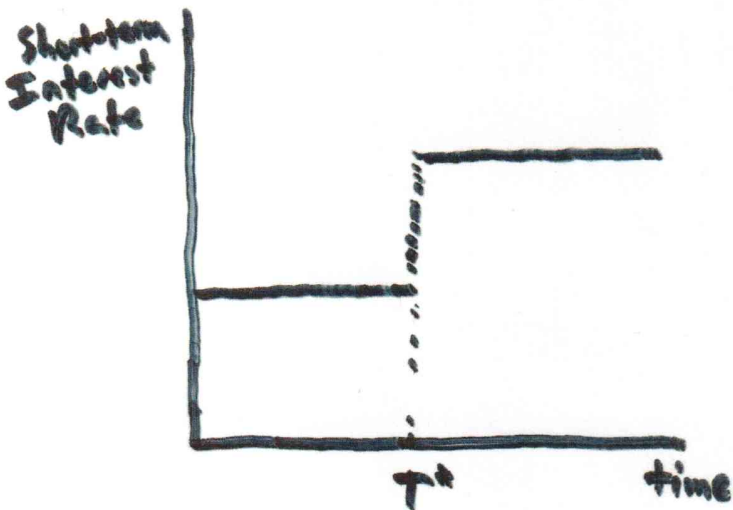
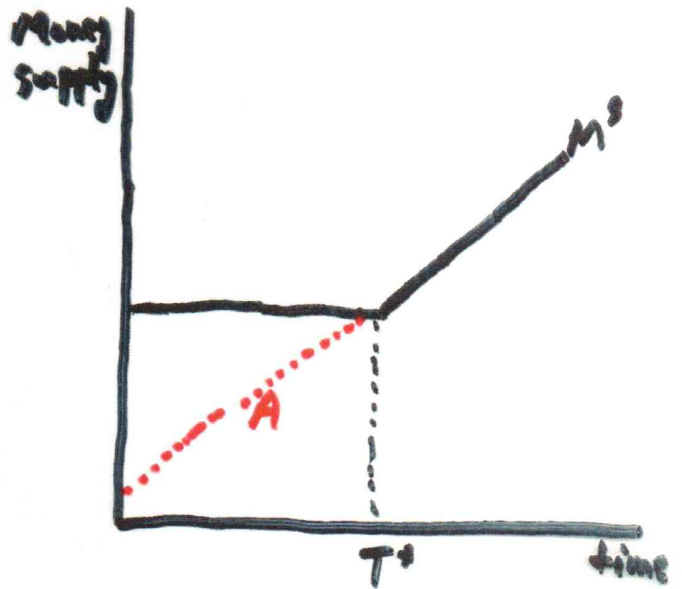
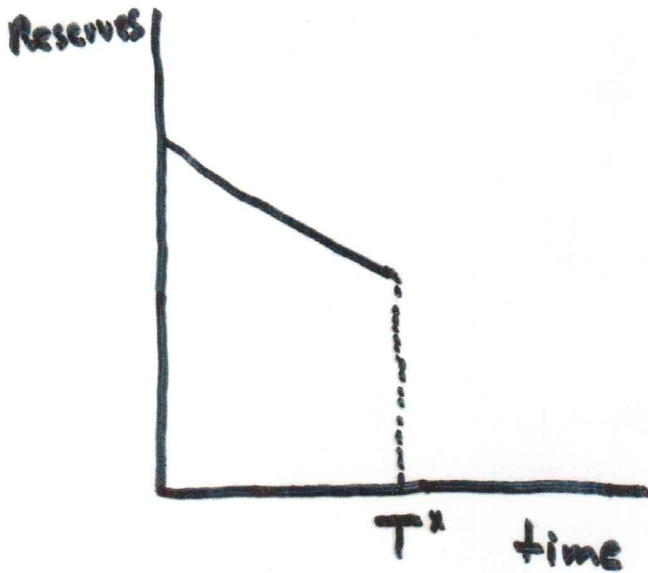


At t^* the drop in reserves and money supply exactly equals the drop in Money Demand that occurs due to the jump in nominal interest rate.

Log-Linear Approximation

$$\begin{aligned}
 f_t &= f_0 - \mu t \\
 m_t - p_t &= -\alpha R^* &> \text{before} \\
 m_t - p_t &= -\alpha(R^* + \mu) &> \text{after}
 \end{aligned}
 \Rightarrow t^* = \frac{f_0}{\mu} - \alpha$$

Time Paths



Note: By construction, the ex. rate does not 'jump' during the crisis. Instead, its rate of change jumps.

Pros + Cons of 1st-Generation Models

Pros

- 1.) They show that speculative attacks can be the rational outcome of market forces.
Theories of 'herding' or mass psychology unnecessary.
- 2.) They show that crises do not have to be accompanied by big shocks or news events. They can be the result of a gradual cumulation of many small imperceptible shocks, which push the economy to a 'critical point'.

Cons

- 1.) Sometimes crises occur without obvious macroeconomic imbalances.
- 2.) Assumptions about govt. behavior are unrealistic.
- 3.) Sometimes abandoning a peg helps the economy (e.g., Britain '92, Brazil '99). Other times devaluations produce large recessions (Mexico '94, Asia '97).
1st Gen. Models can't address this issue.