Speculative Attacks: Second Generation Models

FGM vs SGM: An overview

- FGM (first generation models) advocates that it is the policy inconsistency that drives the crisis.
- authorities fix the exchange rate but also monetize a fiscal debt.
- excessive money creation builds up pressure on the exchange rate and pushes the authorities into making an adjustment; either devalue or abandon the peg.
- ***In SGM (second generation models) there is no policy inconsistency before the crisis***.
- the crisis itself induces a policy change that makes the ***crisis self-validating.***

- So in a nutshell: FGM use excessively expansionary pre-crisis fundamentals ***to push*** the economy into crisis,
- SGM use the expectation of fundamentals expansion ex post to ***pull*** the economy into a crisis that might have been avoided.
- SGM consider an interaction between the private sector and government behavior that gives rise to **multiple equilibria** (there are more than one exchange rate solution possible: a crisis and a non-crisis equilibrium!).
- In principle the economy can jump from one outcome to the other (typically the solution multiplicity is based on self-fulfilling expectations).

Model protocol

- *SGM are usually built around Kydland-Prescott-style models of policy rules, but with an escape clause added on.*
- Recall the standard debate around the choice of rules vs discretion.
- rules more transparent and easy to communicate possible add some credibility and certainly accountability, but rules are less flexible and clearly inferior to discretionary policy at stabilizing the economy against shocks.
- just for a second think of the EMU debate (one-size does not fit all and the debate as to whether Britain should join the Euro or not).
- **Rules with an escape clause** can be a superior strategy to adopting either rules alone or discretion
- Moreover this assumption is very close to the way policy is actually made: policy makers follow a rule-standard operating procedures- most of the

time, but in extraordinary circumstances the policy maker uses discretion to deal appropriately with the situation.

- Of course, with the typical incentive structure, the policymaker is tempted to treat all situations as extraordinary ones.
- Hence, a higher political authority must impose a cost on the policymaker every time the standard rule is violated.

The algebra

- Wages are set a period in advance of employment and are based on the labor market's expectations of government policy (devaluation) for the employment period:

$$w_t = E_{t-1} e_t$$

- Foreign price level is assumed constant and normalized to zero, then if PPP holds:

$$e_t = p_t$$

- Domestic output follows:

$$y_t = \alpha\left(e_t - w_t\right) - u_t,\ \alpha > 0$$

- u_t is a serially-independent mean-zero shock
- The government uses a **loss function** which seeks to minimize:

$$L_t = \theta\left(p_t - p_{t-1}\right) + \left(y_t - y^*\right)^2$$

- The policymaker has one tool (the exchange rate) which is chosen each period after seeing the wage for the period.
- The policymaker initially bears no direct cost from using discretionary policy.
- Using this policy rule a few results are know already: as long as the target is unreastically high, workers must anticipate some inflation, this feeds into their expectations and hence into their negotiations, then it becomes optimal for the policymaker to validate the expectations.

- So the model predicts an inflationary equilibrium even though no one is made better off by anticipating inflation.
- Also, the model predicts that output will be stabilized at the cost of higher than ideal average inflation.
- Alternatively the authorities may consider replacing discretion by a rule: i.e. fix the exchange rate (fixed rate-zero inflation).
- Now the opposite is true: the rule removes the inflationary bias at the cost of higher output volatility since the policy does not respond to stabilize output shocks.
- A more general form is as follows:

$$L = \left[\psi \left(s^* - s \right) + \eta \Delta s^e \right]^2 + C$$
$$\psi, \eta > 0$$

- The term $\eta \Delta s^e$ captures the fact that expected depreciation inflicts a loss of via higher interest

rates (defending the peg in the face of skeptical markets is harder)

- **Rule with an escape clause (**get best of both worlds): follow the rule unless things get too bad and then and only use discretion. Given the apparent flaw, in order to circumvent this problem is to force the policymaker to pay a cost, C, whenever the rule is broken.
- Once the cost of deviating from the rule is imposed, the policymaker uses discretion only in periods when the loss from discretion is less than the loss from holding the exchange rate fixed.
- So, $C = 0,\ if\ \Delta s = 0$
  $= Q,\ if\ \Delta s > 0$
- Zero-cost if stick to the rule, positive cost (punishment) if deviate from the rule
- So we have a set of scenarios as it were:

Scenario 1: market participants expect that the government will resist the pressure to devalue $(\Delta s^e = 0)$

- $L_1 = \left[\psi\left(s^* - s\right)\right]^2$, and if $L_1 < Q$ the peg will be defended (exactly as the markets anticipated)
- **Scenario 2**: market participants expect that the government will 'surrender'

$$L_2 = \left[\psi\left(s^* - s\right) + \eta\left(s^* - s\right)\right]^2 = \left[\left(\psi + \eta\right)\left(s^* - s\right)\right]^2$$

- The market's expectations will prove wrong in this case unless the authorities find it worthwhile to devalue, $L_2 < Q$
- Putting the two cases together, market expectations will be vindicated if: $L_1 < Q < L_2$
- So for this space the government will find it optimal to actually validate the market's expectations (whether they involve defending the peg or allowing it to collapse)

A few conclusions derived from the analysis

- If the cost of devaluing is negligible, devaluations will be a regular occurrence.
- if the cost is set high enough, there will no devaluations.
- the policy advice for situations in-between negligible costs and extremely high costs are unclear.
- In the critical regions (see graph) a speculative attack would be self-fulfilling. It would succeed simply because it was expected to succeed, without any reference to the fundamentals.
- The smaller the gap between the desired (equilibrium) exchange rate and the fixed parity the easier it will be to defend