Application of Monetary Rules to a Nascent Money and Capital Market under a Managed Rate

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November 6-8th 2012.

Why use a simple rule

- This allows the setting of the policy rate using limited information to close the monetary transmission gap running from the final target of monetary policy such as inflation to the policy rate.
- Simple rules allow for transparency and consistency.
- Application of simple rules require money market development to allow for interbank trading to allow for the central bank to steer interest rates.

Moves by Trinidad and Tobago towards market based MP

- Country previously relied solely on prescriptive monetary policy prior to 1993.
  - It relied on reserve requirement, interest rate controls, fixed exchange rate.
- Deliberate movements towards market based policy rate for Trinidad and Tobago can be traced from 1993.
  - The repo rate was employed.
  - Exchange rate was partially liberalised.
- Can a monetary rule be extended to open economies with nascent money and capital markets under managed exchange rates?
- Would smallness create its own uncertainty?

Hypotheses Tests

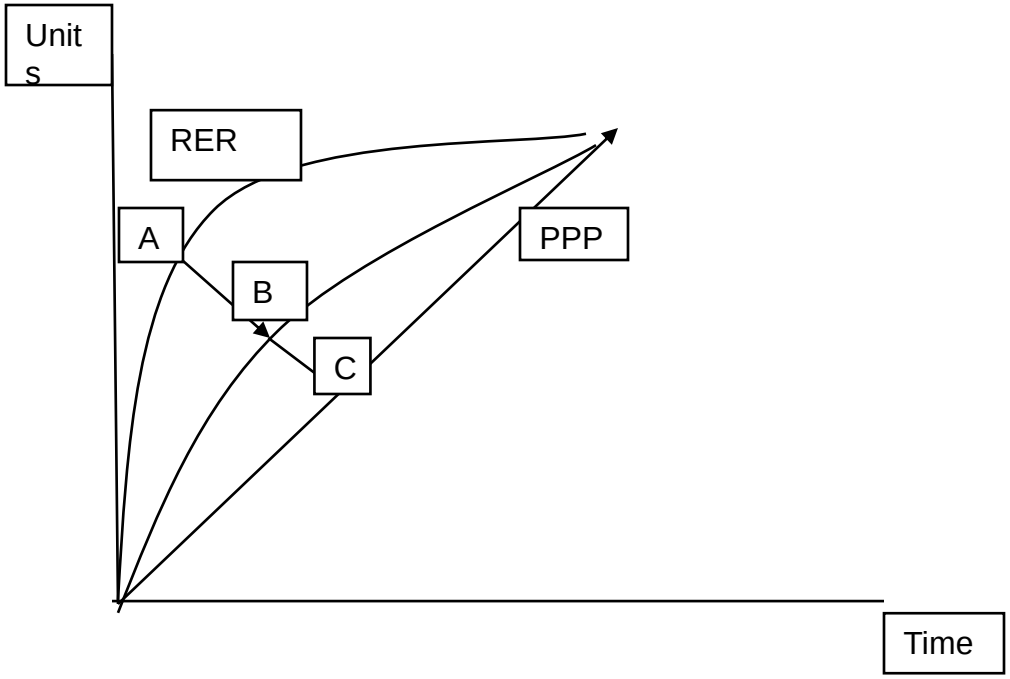
- We test the hypothesis that a Taylor rules fits the policy repo rate for TT against the alternative that it fits the rule when it is augmented by the real exchange rate.
- That is, we test to see whether augmenting the Taylor rule by the real exchange rate would yield superior results in terms of reducing the volatility of inflation and output gap when compared to the simple Taylor (1993) rule.
- That is we test whether the optimal rule developed for the closed economy would minimise volatility of inflation and output gap.
  - Is the same rule developed for the closed economy optimal for the open economy?

Test equation

Forward looking rule

- $i_t^* = \phi_\pi \pi_{t+1} + \phi_y y_t + h_0 q_t + h_1 q_{t-1}$
  - i_t^* is the target policy rate.
  - q_t is the real exchange rate where $q_t = \frac{e_f p_d}{p_f}$
- The rule is stabilising if ϕ_π>1 and ϕ_y>0.
- Null hypothesis is that $h_0 = h_1$=0. This reverts to The traditional Taylor rule.
- Alternative hypothesis is that $h_0, h_1 \neq 0$
- $h_0 + h_1 = 0$. An interpretation is that the central bank reacts to the current exchange rate and reverses its action in the second period.

Relation between Real Exchange Rate and Purchasing Power Parity



Policy Rate Dynamics

- $h_0 + h_1 > 0 \; or \; h_0 + h_1 < 0$ with h_0<0 while h_1>0 or the reverse.
  - This allows for the partial offsetting of initial policy responses by the central bank.
- Here the central bank can choose to either reverse or reinforce its policy action.
- An increase in the nominal exchange rate can lead to a rise in the real exchange rate above fundamentals (PPP).
  - In such a case central bank can loosen MP by lowering the policy rate.
  - If the real exchange rate appreciates above the PPP value then the central bank would seek to stimulate domestic demand by lowering the policy rate to relax monetary policy.
  - If there is a lagged impact on inflation then the central bank would try to partially offset in both periods.

Test format

- $i_t^* = \phi_\pi^\kappa \pi_t^\kappa + \phi_y y_t + h_0^\lambda q_t^\lambda + h_1^\lambda q_{t-1}^\lambda + \varepsilon_t$
  - *Where κ represent either domestic inflation, cpi headline inflation of core inflation.*
  - *λ represent the way by which the exchange rate is calculated. Spot exchange rate, deviation of spot from median rate or deviation of spot from the trend rate.*
- $i_t = \rho i_{t-1} + (1-\rho) i_t^* + \varepsilon_t$ Smoothing.

Variables and data

- Study covers the first quarter of 1997 to end of 2008 to obtain 44 data points.

- We proxy the policy repo rate with the Treasury bill rate.
  - The repo rate was only available from 2nd quarter of 2002.
  - Treasury bill rate is highly correlated with the repo rate.

- Inflation rate is measured using headline and core inflation.
  - Food inflation accounts for the difference between the two rates.

Methodology

- GMM estimation is used.
- A HAC Newey West weighting matrix is employed to correct for heterodkedaticity.
- Instruments consist of the intercept term, lags of the endogenous variables and 2 exogenous variables.
  - The 2 exogenous variables are oil prices and excess reserves.

Estimation Results

- The coefficients of the lagged dependent variables ranged between 0.86 and 0.99 thus suggesting a high degree of smoothing.
  - This suggests that the central bank changes by small increments of no more then 0.14 of a 1 per cent change in the policy rate.
- Inflation coefficient was significantly above 1 for all regressions.
  - This showed that the central bank was aggressive in fighting inflation.

Conclusion

- The results suggest that core inflation is the best measure of inflation since it yielded the lowest variance across the various estimation methods.
- Inflation exhibited the lowest variance when the rule is augmented by the real exchange rate.