

- (e) Test the restriction $H_0 : \beta_d = 1$. Discuss whether the empirical results support the present value model.

2. Forward Market Efficiency

spot.*

The data files contain weekly data (all recorded on a Wednesday) for the period 4 January 1984 to 31 December 1990 on the spot \$/AUD exchange rate together with forward rates for 1, 3, and 6 months. The data are from Corbae, Lim, and Ouliaris (1992) who test for speculative efficiency by considering the equation

$$s_t = \beta_0 + \beta_f f_{t-n} + u_t,$$

where s_t is the log spot rate, f_{t-n} is the log forward rate lagged n periods, and u_t is a disturbance term. In the case of weekly data and when the forward rate is the 1-month rate, f_{t-4} is an unbiased estimator of s_t if $\beta_f = 1$ and $\beta_0 = 0$.

- (a) Use unit root tests to determine the level of integration of s_t and f_t .
(b) Test for cointegration between $\gamma_t = (s_t, f_{t-4})$ by specifying the VECM

$$\Delta \gamma_t = \alpha(\beta' \gamma_{t-1} - \beta_0) + v_t.$$

- (c) Given the results in part (b), estimate a bivariate VECM.
(d) Interpret the parameter estimates $\hat{\beta}_0$ and $\hat{\beta}_f$, and test the restriction $\beta_f = 1$.
(e) Repeat parts (a) to (d) for the 3-month and 6-month forward rates. *Hint: remember that the frequency of the data is weekly.*

3. Fisher Hypothesis

fisher.*

The data file contains US quarterly data for the period September 1954 to December 2007 on the annualized nominal interest rate expressed as a percentage,