

EC3090 – Econometrics -

Lab session 5-6

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Exercise 18.11, Wooldridge, page 666

Use the data in VOLAT.fit for this exercise

1. Generate $\text{lsp500} = \log(\text{sp500})$ and $\text{lip} = \log(\text{ip})$
2. Plot lsp500 and lip over time.
3. Confirm that $\text{lsp500} = \log(\text{sp500})$ and $\text{lip} = \log(\text{ip})$ appear to contain unit roots. Use Dickey Fuller tests with four lagged changes and do the tests with and without a linear trend.
4. Run a simple regression on lsp500 on lip . Comment on the sizes of the t statistic and R-squared.
5. Use the residuals from part (4) to test whether lsp500 and lip are cointegrated. Use the standard dickey-fuller test and ADF test with two lags. What do you conclude
6. Add a linear time trend to the regression from part (4) and now test for cointegration using the same tests from part (5).
7. Does it appear that stock prices and real economic activity have a long-run equilibrium relationship?

1. date	1947.01 to 1993.06
2. sp500	S&P 500 index
3. divyld	dividend yield, annualized rate
4. i3	3 mo. T-bill annualized rate
5. ip	index of industrial production
6. pcsp	pct chg, sp500, ann rate
7. rsp500	return on sp500: pcsp + divyld
8. pcip	pct chg, IP, ann. rate
9. ci3	$i3 - i3[t-1]$
10. ci3_1	$ci3[t-1]$
11. ci3_2	$ci3[t-2]$
12. pcip_1	$pcip[t-1]$
13. pcip_2	$pcip[t-2]$
14. pcip_3	$pcip[t-3]$
15. pcsp_1	$pcsp[t-1]$
16. pcsp_2	$pcsp[t-2]$
17. pcsp_3	$pcsp[t-3]$