

Saving, Investment, and Capital Mobility: A Comment on Leachman—A Reply

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The seminal study by Feldstein and Horioka (1980) concerning the correlations between domestic saving and investment rates has certainly spawned a vigorous debate in the literature as to the robustness, causes, and interpretation of the findings. The prevailing consensus among the cross-sectional-based studies is that saving and investment rates are correlated, hence capital is not perfectly mobile. The evidence produced from time series studies, however, is mixed. For a general review of the literature see Tesar (1991).

In an earlier study published in this journal (Leachman 1991) I conduct cointegration tests on saving and investment rates for 24 OECD countries using annual data from 1960 through 1984. Results indicate that a long-run equilibrium relationship is not present between saving and investment rates in any of the OECD countries. Admittedly, the data sample is much shorter than optimal. However, Hakkio and Rush (1990) point out that "the relevant factor (for cointegration tests) is the length of the total sample period relative to the length of the long run for the data." Therefore, to truly assess the robustness of the cointegration tests what is needed is an estimate of ρ from the following equations:

$$Y_t = X_t + \epsilon_t,$$

$$\epsilon_t = \rho\epsilon_{t-1} + U_t.$$

Once ρ is determined, we can estimate the half life of an innovation in ϵ_t and use this information to deduce how long the long run is. With this information we can then assess how appropriate the data sample is for reflecting the long-run properties of the data.

Certainly, the much-expanded data sample for Australia, Canada, and the United Kingdom in the preceding study should be expected to improve the robustness of the cointegration tests. However, it is not clear that expansion of the sample observations from 25 to approximately 40 for France, Germany, Japan, and the Netherlands significantly improves the inferences from cointegration testing.

Moreover, the extension of the data sample is accomplished for the most part through the addition of observations to the front end of the

sample. Given that the additional years correspond to an era of extensive capital controls, one would expect that their inclusion would tilt the results toward the finding of cointegration. So results indicating that only four of the 10 countries tested evidenced cointegration indicates to me that cointegration between domestic saving and investment rates is not the norm. Additionally, the fact that cointegration is not found in tests of arbitrary 25-year periods prior to 1960 for Australian saving and investment rates (yet for the entire sample period cointegration is present), I interpret as an indication that the long run may indeed be quite long for this country. Therefore, in the Australian case the results generated from the de Haan and Siermann (1994) study may be more appropriate.

The finding by de Haan and Siermann of cointegrating relationships between investment and saving rates for three of the seven countries included in my study is not at all surprising. As has been noted, the sample period as well as size differs. Additionally, they use gross while I used net saving and investment rates. The cointegration present in the Australian saving-investment relationship as well as that of India may be explained in terms of country size. Cointegration between investment and saving rates in Japan and France may be due to the capital controls in place in these markets.

Of more interest is the lack of cointegration between saving and investment in Korea and Taiwan. This finding is consistent with the work of Fieleke (1982) and Dooley et al. (1987) and merits greater exploration. Also the general lack of cointegration in the smaller and historically more open economies can be interpreted as an indication of the validity of the saving-investment approach and small, open-economy models.

The fact that the results of cointegration tests between saving and fixed investment support the notion that demand and supply-side shocks may account for much of the correlation between saving and investment rates is the most striking point of the preceding work. It is evidenced by lower cointegration test statistics as well as smaller scaling coefficients in the cointegrating regression. This observation is consistent with the conjecture that changing fundamentals may drive the association evidenced between the series in each country rather than the degree of openness or closeness. Future research should therefore attempt to determine whether the shocks are demand or supply oriented. Once done, models may be developed to reflect the impact of changes in fundamentals on saving, investment or both.

Finally, I have no doubt that if Johansen's procedure were used to test for saving-investment cointegration using the same 25-year period and groups of countries as in the original paper, we would find still different results. In fact, a study by Gundlach and Sinn (1991) using

the original sample and a somewhat different approach finds evidence of capital immobility for 20 of the 23 OECD countries tested. Given the methodological improvements associated with Johansen's approach, the results it would generate would probably be closer to the truth. Additionally, where cointegration is present, we would be able to discuss the speed of adjustment of each series to the equilibrium path. This information would be helpful in as much as it would be reflective of the relative degree of capital immobility within a particular economy.

References

- De Haan, J. and Clemens L.J. Siermann (1994). "Saving, Investment, and Capital Mobility: A Comment on Leachman," *Open Economies Review* 5,1.
- Dooley, M., J. Frankel and D. Mathieson (1987) "International Capital Mobility: What Do Saving-Investment Correlations Tell Us?" *IMF Staff Papers* 34, 503-530.
- Feldstein, M. and C. Horioka (1980) "Domestic Saving and International Capital Flows," *The Economic Journal* 90, 314-329.
- Fieleke, N. (1982) "National Saving and International Investment." In *Saving and Government Policy*, Federal Reserve Bank of Boston Conference Series No. 25, pp. 138-157.
- Gundlach, E. and S. Sinn (1991) "Unit Root Tests of the Current Account Balance: Implications For International Capital Mobility," Kiel Institute of World Economics Working Paper Series No. 495, pp. 1-24.
- Hakkio, C. and M. Rush (1990) "Cointegration: How Short Is the Long Run?" Federal Reserve Bank of Kansas City Working Paper Series No. 90-08, pp. 1-20.
- Leachman, L. (1991) "Saving Investment and Capital Mobility Among OECD Countries," *Open Economies Review* 2, 137-163.
- Tesar, L.L. (1991) "Saving, Investment and International Capital Flows," *Journal of International Economics* 31, 55-78.