

zero. It is apparent that the confidence bounds grow with increasing lag length. For a rough check of 5% level significance of autocorrelations at higher lags, we may use the $\pm 2/\sqrt{T}$ -bounds in practice, which is convenient from a computational viewpoint.

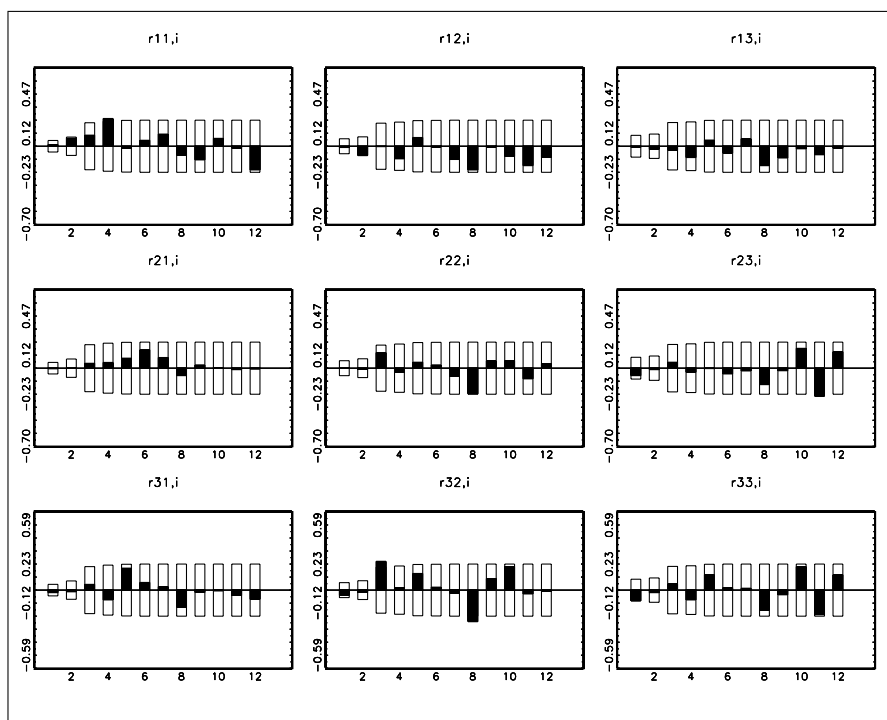


Fig. 4.2. Estimated residual autocorrelations with two-standard error bounds for the investment/income/consumption VAR(2) model.

There are significant residual autocorrelations at lags 3, 4, 8, and 11. While the significant values at lags 3 and 4 may be a reason for concern, one may not worry too much about the higher order lags because one may not be willing to fit a high order model if forecasting is the objective. As we have seen in Section 4.3.4, slight underfitting may even improve the forecast performance. In order to remove the significant residual autocorrelations at low lags, it may help to fit a VAR(3) or VAR(4) model. Of course, this conflicts with choosing the model order on the basis of the model selection criteria. Thus, it has to be decided which criterion is given priority.

It may be worth noting that a plot like that in Figure 4.2 may give a misleading picture of the overall significance of the residual autocorrelations because they are not asymptotically independent. In particular, at low lags there will not only be nonzero correlation between the elements of a specific \hat{R}_j