The next step is to combine equations (1) and (2) by eliminating one variable, Z_m, common to both. This is done by subtraction and manipulation of the resulting bunches of structural coefficients attached to each variable. The variable chosen for elimination is the stock of liquid assets held by State and local governments. As can be seen from the solutions footnoted,[5] the relationships between the structural coefficients of equations (1) and (2) and the structural coefficients in the combined equation:

$$B_t=\delta'[C_i'X'_{it}+D_j'Y'_{jt}+E'_kZ'_{kt}-S_{t-1}] \tag{3}$$

are interesting.[6] The equation (3) reaction-speed coefficient, delta prime, is a weighed harmonic mean of the demand and supply reaction-speed coefficients. The equation (3) structural coefficient of variables present in one but not the other of the demand and supply equations (C' and D') equal their respective equation (1) or (2) coefficients divided by the ratio of one to both of the target coefficients of the eliminated variable. And the equation (3) structural coefficients of variables common to both demand and supply equations equal the weighted mean of the demand and supply coefficients (counting the signs of these). (The weights are the structural coefficients of the eliminated variable.) Therefore, estimates of C', D', and E' would be biased as estimates of the "true" structural coefficients; but we can at least guess at the extent of the bias by means of judgmental estimates of the coefficients of the eliminated variable (β_m and A_m).

This has not been done with respect to the absolute magnitudes of these two last coefficients, because our information is too slender for setting even judgmental limits within which the true values probably lie. However, we might speculate as to the *proportion* between them for judging whether the delta-prime coefficients in table 1 (equal to those for lagged State and local debt as a percent of permanent income) appear to be reasonable. For a number of reasons, in-

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[5] Let Z_m be the variable to be eliminated in combining equations 1 and 2 (it equals liquid assets of State and local governments, in our case). The beta and A coefficients for that variable, in equations 1 and 2, respectively, are B_m and A_m. Keeping the notation the same as in these two equations, and understanding that the vector Z'_k is now bereft of the eliminated variable (Z_m) it can be shown that the relationships are as follows between the structural coefficients in equation (3) and the structural coefficients in equations (1) and (2):

$$\delta'=\frac{\delta_1\delta_2(A_m+\beta_m)}{\delta_1\beta_m+\delta_2A_m}=\frac{1}{\frac{\beta_m}{\delta_2(A_m+\beta_m)}+\frac{A_m}{\delta_1(A_m+\beta_m)}}$$

$$C_i'=\beta_i'\left(\frac{A_m}{A_m+\beta_m}\right)=\frac{\beta_i'}{1+\frac{\beta_m}{A_m}}$$

$$D_j'=A_j'\left(\frac{\beta_m}{A_m+\beta_m}\right)=\frac{A_j'}{1+\frac{A_m}{\beta_m}}$$

$$E_k'=A_k'\left(\frac{\beta_m}{\beta_m+A_m}\right)+\beta_k'\left(\frac{A_m}{A_m+\beta_m}\right)$$

as long as we assume that liquid assets (Z_m) have a negative impact on borrowing (since they are an alternative source of finance for construction) but a positive impact on willingness to lend.

[6] Equations (1) and (2) can also be combined by addition without eliminating any variable which is common to both. The writer preferred to avoid this because it is impossible to eliminate the borrower and lender reaction-speed coefficients from the clusters of structural coefficients equivalent to the structural ones for each target-determining variable in equation (3). However, the reader is welcome to interpret findings in this way, if he is of the opinion that State and local liquid asset holding were unimportant or unstable determinants of both the demand for and the supply of bonds.