Volume Title: The Channels of Monetary Effects on Interest Rates

Volume Author/Editor: Philip Cagan

Volume Publisher: NBER

Volume ISBN: 0-87014-235-6

Volume URL: http://www.nber.org/books/caga72-1

Publication Date: 1972

Chapter Title: The Components of Bank Credit

Chapter Author: Philip Cagan

Chapter URL: http://www.nber.org/chapters/c3479

Chapter pages in book: (p. 81 - 84)

5

The Components of Bank Credit

The statistical analysis of the preceding chapter may underestimate the credit effect by not distinguishing between bank loans and investments, since they could influence particular interest rates differently. Bank loans, for example, should have the greatest impact on commercial paper and bank loan rates; and bank investments, on security yields. We can examine such differential effects by dividing the total earning assets of the banking system into loans to customers and purchases of securities on the open market. The latter consist of Federal Reserve credit outstanding exclusive of loans to member banks (item 2 in Table 4-1) plus investments of commercial banks (item 15). Mortgages are classified as loans in banking data, and only the annual data provide sufficient detail to treat them as investments, a more appropriate classification here because mortgage interest rates behave similarly to long-term rates.

Table 5-1 repeats the previous regressions, with the credit variable subdivided into loans, L, and investments, I (Treasury debt operations omitted). The regressions are in the form:

$$i = \beta_L\, dL + \beta_I dI + \mu(dM - dL - dI) \qquad (1)$$

where the third term on the right is the residual source of monetary growth excluding the contribution of bank credit. As before, the regressions were run as first differences, and in all of them the cyclical movement was held constant by dummy variables in order to remove the cyclical response of loans to credit demand. (Also, the figures in

TABLE 5-1

Relation Between Interest Rates and Two Components of Bank Credit, Consolidated Monetary System Excluding Treasury, 1919–61 and 1948–61

Interest Rate and Period	Partial Regression Coefficient			
	Expansion of			Residual Monetary Growth
	Loans (β_L)	Investments (β_I)	$\beta_L - \beta_I$	(μ)
	Changes Between Reference Cycle Stages			
1919–61				
Commercial paper	−3.1(3.2)	−3.1(3.8)	−0.1(0.0)	−2.6(3.4)
Bank loans	−2.2(3.9)	−1.1(2.2)	−1.1(1.9)	−1.1(2.4)
Treasury bills	−2.9(2.9)	−4.0(4.9)	+1.0(0.9)	−3.3(4.1)
U.S. bonds	−1.4(2.9)	−1.5(3.7)	+0.1(0.2)	−1.1(2.9)
Corp. and municipal bonds	−1.4(3.0)	−0.9(2.2)	−0.5(1.1)	−1.1(2.8)
1948–61				
Commercial paper	−7.7(2.1)	−6.1(3.0)	−1.7(0.5)	−4.5(2.1)
Bank loans	−2.4(1.5)	−1.4(1.6)	−1.0(0.8)	−1.1(1.2)
Treasury bills	−6.2(1.4)	−8.0(3.3)	+1.8(0.5)	−6.7(2.6)
U.S. bonds	−1.3(0.9)	−1.4(1.8)	+0.1(0.1)	−1.2(1.4)
Corp. and municipal bonds	−3.8(1.9)	−1.9(1.7)	+2.0(1.2)	−1.7(1.5)
	Annual Changes			
Commercial paper, 1896–1963	−9.5(6.4)	−6.5(4.9)	−3.0(1.7)	−7.5(3.6)
Treasury bills, 1920–63	−5.5(1.8)	−4.4(2.6)	−1.1(0.4)	−5.4(2.1)
U.S. bonds, 1919–62	−2.8(3.1)	−1.3(1.9)	−1.5(1.7)	−1.2(1.0)
Corp. and municipal bonds, 1900–63	−2.4(3.9)	−1.1(2.2)	−1.3(1.8)	−1.5(1.8)

Note: Figures in parentheses are t values with signs omitted. These regressions are based on equation 1 in the text.

Changes between reference stage averages:

$$\Delta i = \beta_L \Delta[dL/(L+I)] + \beta_I \Delta[dI/(L+I)] + \mu\Delta\{[dM/(L+I)] - [d(L+I)/(L+I)]\} + \Sigma_1^7 \delta_s D_s + \text{constant}.$$

(continued)

Notes to Table 5-1 (concluded)

Changes between annual rates of change:

$$\Delta i = \beta_L \Delta(dL/M) + \beta_I \Delta(dI/M) + \mu\Delta\{(dM/M) - [d(L+I)/M]\} + \delta D + \text{constant}$$

where i is the interest rate; M, total money stock; L loans of commercial banks; and I Federal Reserve credit outstanding exclusive of loans to banks plus investments of commercial banks. The D's are dummy variables, as explained in the appendix to Chapter 3. β_L, β_I, μ, and δ are regression coefficients. The operator Δ denotes first differences in reference stage averages or in annual data. For 1919–61, L and I pertain to weekly reporting member banks; for 1948–61, to all commercial banks. For reference stage averages based on monthly data, mortgages are classified in the original data as loans, but for annual changes as investments (correctly for present purposes).

Unlike the regressions in the previous chapter, the independent variables for reference stages here were divided by earning assets rather than the money stock. In the reference stage equations, $dL/d(L+I)$, $dI/d(L+I)$, and $dM/d(L+I)$ are reference stage averages of monthly percentage changes, converted to annual rates. However, $dM/d(L+I)$ was approximated by $(dM/M) \cdot [M/(L+I)]$, in which reference stage averages were computed *before* taking the product, because stage averages of dM/M were already available.

Source: See the data appendix.

Table 5-1 were computed at an earlier time than those in the foregoing tables. As explained in the note to Table 5-1, these regressions were run with slightly different versions of some of the variables and have earlier terminal dates; two of the annual regressions have an earlier starting date. But these differences are minor.)

The credit theory implies that the loan coefficient should be larger in absolute value than the investment coefficient for commercial paper and bank loan rates, and smaller for security yields. The results only faintly support that implication. For commercial paper and bank loan rates, the absolute value of the regression coefficient for loans is indeed slightly larger than that for investments, and vice versa for Treasury bill and U.S. bond yields, except in the annual regressions. For the other bond series and the annual regressions, however, the coefficients are not uniformly consistent with the credit theory. In particular, the effect of investments is not generally greater on security yields than the effect of loans. Moreover, no pair of loan and investment coefficients differs significantly at the .05 level, though that for bank loans 1919–61 almost does.

Furthermore, if we compare the two credit effects with that of residual monetary growth, the former are not relatively larger (in absolute value) here than they were in Chapter 4, where loans and investments were not separated. Failure to make the separation, therefore, does not produce an underestimate of the credit effect.

If there were little or no arbitrage among financial markets, credit expansion in particular markets would affect local interest rates. The results suggest some initial effect, but it is slight and apparently short-lived, even for the markets for which bank credit supposedly plays a dominant role—commercial paper and bank loans.

The cornerstone of the credit theory is the alleged independence of financial markets. Special circumstances may produce partial independence, as in the mortgage market. But, in general, studies which have looked for individual supply effects in particular financial markets have found the effects to be weak or nonexistent. Alternative opportunities for demanders and access by alternative suppliers appear to keep these subsectors in line with the financial market as a whole. The present results confirm this conclusion.