MONETARY POLICY AND THE EXTENSION OF TRADE CREDIT*

The role of monetary policy in the achievement of growth and stability has been discussed at length. Prominent in the discussion has been the question of whether changes in the velocity of circulation of money tend to offset changes in the quantity of money.[1]

The following analysis is related to the velocity discussions in that this analysis considers changes in activity in a particular segment of the credit market, namely, trade credit. More specifically, this analysis considers the effect of changing monetary policies on the use of trade credit. An attempt is made to determine whether changes in monetary policy induce changes in the use of trade credit which exert a stabilizing influence on the economy. Do changes in monetary policies, in other words, restrain (stimulate) the use of trade credit when such restraint (stimulation) is most desirable? Or do changes in monetary policies result in changes in the use of trade credit (reflected as changes in the velocity of circulation of money) which exert a destabilizing influence on the economy?[2]

The discussion which follows suggests that neither of the preceding questions can be given an affirmative answer. An analysis of the use of trade credit relative to sales (the ratio of manufacturing receivables to sales) and selected indices of the tightness of the money market suggests that there is no noticeable relationship between these variables. Thus the analysis suggests that the extension of trade credit relative to sales by manufacturing corporations does not tend to decrease in response to restrictive monetary policies nor increase in response to expansionary monetary policies. This important segment of the credit market, in other words, appears to be rather insensitive to changes in monetary policies.

I. SOME FACTORS INFLUENCING THE USE OF TRADE CREDIT

How might tight monetary policies be expected to affect the use of trade credit relative to sales? If attention is focused on the supply of trade credit, it can be assumed that tight money (higher interest rates) will cause, *ceteris paribus*, the supply of trade credit to decrease. But there are considerations other than the cost of credit

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[1] Cf. J. G. Gurley and E. S. Shaw, "Financial Aspects of Economic Development," *American Economic Review*, September 1955, pp. 515–538; H. P. Minsky, "Central Banking and Money Market Changes," *Quarterly Journal of Economics*, May 1957, pp. 171–187; L. S. Ritter, "Income Velocity and Monetary Policy," *American Economic Review*, March 1959, pp. 120–229; Stephen W. Rousseas, "Velocity Changes and the Effectiveness of Monetary Policy, 1951–57," *The Review of Economics and Statistics*, February 1960, pp. 27–36; and Warren L. Smith, "On the Effectiveness of Monetary Policy," *American Economic Review*, September 1956, pp. 588–606.

[2] It should be emphasized that this is not an attempt to judge the over-all effectiveness of monetary policy. Conclusions based upon this research should be considered along with virtually an infinite number of other variables that would be relevant in an evaluation of the general effectiveness of monetary policy. However, the ma nitude of trade credit in dollar terms suggests that it is one of the more important segments of the credit market. Corporate receivables, used here to measure trade credit, amounted to $47 billion in the second quarter of 1962, while total bank credit utilized by corporations at that time amounted to $13 billion.

The magnitude and importance of trade credit is emphasized in the *Report of the Committee on the Working of the Monetary System*, the so-called Radcliffe Report (London: Her Majesty's Stationary Office, 1959), p. 103. This subject is also discussed in an article by Hedwig Reinhardt, "Economics of Mercantile Credit: A Study of Methodology," *The Review of Economics and Statistics*, November 1957, pp. 463–467.

which will affect decisions concerning the extension (supply) of trade credit. For example, competitive pressure undoubtedly has a significant effect on decisions concerning trade credit extensions. How a particular firm behaves will depend in part on how other firms are expected to react. One firm will not tighten selling terms and restrict credit extensions unless it is believed that competitors will behave similarly. Also, the internal financial resources of the company will be an important consideration in making decisions concerning trade credit extensions. If a firm is in a position to extend additional credit by using funds generated internally, it may prefer not to tighten selling terms. In fact, some firms may respond to restrictive monetary policies by liberalizing credit terms in an attempt to "cement" customer relations.

It is not logical to assume, therefore, that the supply of trade credit will necessarily be decreased in response to restrictive monetary policies. But assume for the moment that the trade credit supply schedule *does* shift upward. Even with such an assumption it does not necessarily follow that less trade credit will be used. As in any market, the volume of trade credit purchased will depend on both demand and supply. And as money becomes tighter, there is likely to be an increase in the demand for trade credit.[3] The quantity of trade credit utilized at the new equilibrium, after upward shifts in both the supply and demand functions, will depend upon the magnitude of the shifts and the elasticities of the two functions. Although both schedules may shift, it is possible, and perhaps probable, that the shift in the demand schedule will outweigh the shift in the supply schedule. Thus, the new equilibrium may result in an increase in the use of trade credit. It is conceivable, therefore, that restrictive monetary policies may set in motion a series of changes in financial transactions which can prevent a decrease, and possibly cause an increase, in the use of trade credit.[4]

II. AN EMPIRICAL ANALYSIS

The possible relationships between changes in monetary policies and the extension of trade credit can be stated as follows: (1) That the extension of trade credit relative to sales decreases as money becomes "tight" and increases as money becomes "easy."[5] (2) That the extension of trade credit relative to sales is not significantly affected by

[3] The results of a 1957 study by the Federal Reserve System support this line of reasoning. Cf. Federal Reserve System, *Financing Small Business*, A Report to the Committees on Banking and Currency and the Select Committees on Small Business, 85th Congress, 2nd Session (Washington, D.C.: U. S. Government Printing Office, 1958), pp. 482–498. It is stated on page 489, for example, that " . . . it is clear that small business with well established relations with their suppliers can slow up their payments if they encounter temporary adversity, or if credit from other sources diminishes, without fearing that the supplier will cut off the flow of merchandise to them. They may also, of course, request extended credit terms on current orders." Further evidence on this point is supplied by Allan H. Meltzer, "Mercantile Credit, Monetary Policy and Size of Firms," *The Review of Economics and Statistics*, November 1960, pp. 429–437.

[4] A study by the Federal Reserve Bank of Kansas City states in part that "Such (trade) credit also was found to possess flexibility that could not be explained by the increase in the volume of sales, shifts in demand, or the growth of corporate installment credit, lending support to the conclusion that credit restriction played a part in the expansion of trade credit during the period from 1954 to 1956." Reprinted in Federal Reserve System, *op. cit.*, p. 511.

[5] Although several factors affect the dollar volume of trade credit outstanding at any given time, one of the more important factors is sales. The use of trade credit can be expected to fluctuate with sales, increasing when sales are increasing (often during periods characterized by monetary restraint) and decreasing when sales are decreasing (often during periods characterized by expansionary monetary policies). Consequently, it would not be too surprising to find the dollar volume of trade credit increasing when money is tight and decreasing when money is easy. The ratio of receivables to sales, therefore, is used to abstract from those fluctuations in the extension of trade credit which are due to fluctuating sales. The ratio of receivables at the end of each quarter to sales during the quarter varied during the 10 year period from .31 to .44.

TABLE I

LINEAR REGRESSIONS OF THE TREASURY BILL RATE ON THE RATIO OF RECEIVABLES TO SALES FOR MANUFACTURING CORPORATIONS

Regression:	Regression Coefficient (b)	Standard Error of Regression Coefficient (s_b)	b/s_b* (t)	Coefficient of Determination (r^2)
Treasury bill rate on R/S.....	2.44	.54	4.49	.36
Treasury bill rate on R/S lagged one period ($R/S_t = TBR_{t-1}$).....	2.51	.58	4.37	.35
Treasury bill rate on R/S, both seasonally adjusted..	2.58	.48	5.43	.45
Quarterly change in the Treasury bill rate on quarterly change in R/S....	−1.60	.99	1.61	.07
Quarterly change in the Treasury bill rate on quarterly change in R/S lagged one period ($\Delta R/S_t = \Delta TBR_{t-1}$).....	−.31	1.05	.3	.0025

* t values greater than 2 are considered significant.

changes in monetary policies. And (3), that the extension of trade credit relative to sales increases as money becomes "tight" and decreases as money becomes "easy."

A relationship as described by statement number one above would mean that fluctuations in the extension of trade credit reinforce monetary policies, thus contributing to the effectiveness of monetary policy. However, a relationship as described by the second statement would suggest that fluctuations in the extension of trade credit are insensitive to changes in monetary policies. And the third possible relationship suggests that fluctuations in the extension of trade credit tend to counteract changes in monetary policies, thus exerting a destabilizing influence on the economy.

Quantitative measures of trade credit and the tightness of the money market were selected to facilitate an analysis of the relationship, if any, between these two variables. For purposes of this analysis, therefore, trade credit is defined as notes and accounts receivable of manufacturing corporations.[6] This restricted definition, which was adopted to correspond as nearly as possible to available data, is not entirely satisfactory for several reasons. Some credit which should be included in trade credit is not normally shown in accounting records as notes and accounts receivable. Likewise, notes and accounts receivable do not consist entirely of trade credit. Included in receivables is consumer credit which, in the case of manufacturing corporations, may account for as much as 10 to 12 per cent of total receivables. However, it is necessary to estimate the volume of trade credit by using a proxy variable because trade credit data, as such, are not available.

Four different measures of the tightness of the money market were considered. However, the Treasury bill rate was selected as the best indicator of changes in monetary policies for this analysis.[7]

The regression coefficient, and other data presented in Table I, shows a positive relationship between the Treasury bill rate and the ratio of receivables to sales. An

[6] There may be some question about using "receivables" instead of "payables" as an indicator of the volume of trade credit outstanding at any given time. Payables are preferable in that they would include only trade credit—no consumer credit. However, payables data would exclude considerable amounts of trade credit because data are available only for corporations. Many unincorporated businesses receive trade credit from manufacturers.

The analysis is limited to manufacturing corporations because quarterly balance sheet data are available for manufacturing corporations in the Federal Trade Commission-Securities & Exchange Commission, *Quarterly Financial Report for Manufacturing Corporations*. The receivables of manufacturing corporations amount to approximately one-half of the receivables for all corporations.

[7] The other measures considered were net free reserves of all member banks, net free reserves of reserve city banks, and borrowed reserves of all member banks.

increase of one percentage point in the bill rate (for example, a change from .03 to .04) is associated with an average increase of .0244 in the ratio of receivables to sales. More specifically, if total manufacturing sales amounted to $86 billion, the figure for the first quarter of 1960, an increase of one percentage point in the bill rate would be associated with a $2 billion increase in receivables.[8]

The positive relationship disappeared, however, with the use of first differences to remove the effect of trend from the analysis. If quarterly change in the ratio of receivables to sales is compared with quarterly change in the Treasury bill rate, a weak negative relationship is discovered. (See Table I.)[9] The first difference analysis, therefore, suggests that the positive relationship between the ratio of receivables to sales (unadjusted) and the Treasury bill rate (unadjusted) is due primarily to the upward trend that is characteristic of both sets of data.

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[8] Introducing the assumption of lags, either a one-period lag or a distributed lag, did not suggest a significantly different relationship. Likewise, the same kind of analysis using seasonally adjusted data for both variables did not show a significantly different relationship. (See Table I.)

[9] The negative relationship becomes even weaker if either a lagged relationship is assumed or if seasonally adjusted data are used.